MALTER CONSULTING, INC.
P.O. Box 176, Waterbury VT 05676 (802)244-7373 FAX (802) 244-7570

December 2, 1994

Michael Young
Sites Management Section
Hazardous Materials Management Division
Vermont Department of Environmental Conservation
103 South Main Street
Waterbury, VT 05671-0404

Dear Mike;

Enclosed is the Site Investigation Report and Initial Corrective Action Feasibility Investigation for the Hutchins and White Petroleum Storage Facility located in Castleton, Vermont. There will be additional information submitted to you following the aquifer test and test pit investigation that is planned for this month.

As you will note, Monitoring Well 11, an off site well exceeds the Primary Groundwater Enforcement Standard for Benzene and 1,2 Dichloroethane. This will serve to notify the Secretary in accordance with Chapter 12, Section 709 (1) (a) of the Groundwater Protection Rule and Strategy.

The site has had both underground and above ground storage tank releases in the past. In 1990, Owner Services, Inc. chose to remove the underground storage tanks (USTS) under the supervision of the Petroleum Sites Management Section (PSMS). At that time, contaminated groundwater from the 3,000 and 4,000 gallon USTs was suspected. Two monitoring wells were installed and sampled and analyzed in September of 1990. Only low concentrations of Methyl tertiary Butyl Ether (<10ppb) was detected in the monitoring well closest to the former USTs. Based on these findings the PSMS indicated that White Fuels had satisfied the VT.DEC's requirements and they closed the site.

Based on the sampling that has been done in the current investigation, weathered gasoline is present in MW-11 and may be present in MW-1, MW-2, MW-6 and MW-7.Because of a mixture of gasoline with a kerosene like product in these wells, it is difficult to conclusively attribute the degree of degradation of the gasoline in those samples.

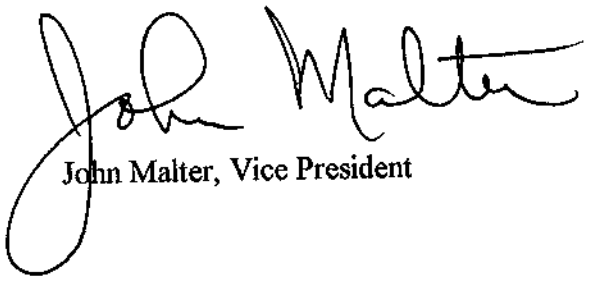
I would like the opportunity to have the site made eligible for participation in the Petroleum Cleanup Fund (PCF). I recognize that there are problems at this site that are unrelated to UST releases, however, I request assistance in assigning some portion of the investigation and remediation expenses to the PCF.

After Owner Services, Inc. purchased Hutchins and White in 1988, they met their financial assurance as a UST owner by being insured through the Bradley and Wellington Corporation, a captive insurance company that has since gone bankrupt. Since 1987, Owner Services, Inc. has paid over $160,000 into the PCF through the distributor licensing fee.

Please feel free to contact me or Chris Keyser if you have any questions about the enclosed report or the request for access to the PCF.

Thank you for any assistance you can provide.

Sincerely



John Malter, Vice President

enc.

INITIAL SITE INVESTIGATION
AND
CORRECTIVE ACTION FEASIBILITY INVESTIGATION

Hutchins and White Fuels
Main Street
Castleton, VT 05735

43° 36' 41"N
73° 10' 13"W

SMS Site #94-1626

A Facility Owned By:
Owner Services, Inc.
41 School Street
Proctor, VT 05765

Prepared By:
Malter Consulting, Inc.
Box 176
Waterbury, VT 05676
(802)-244-7373
Contact: John Malter, CHMM

December 1, 1994

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EXECUTIVE SUMMARY

Malter Consulting, Inc., in conjunction with Wehran Emcon, has performed a hydrogeologic investigation and corrective action feasibility investigation for the Hutchins and White petroleum bulk plant located on Main Street, (Vt. Rte 4A), Castleton, Vermont. Initial corrective actions have also been undertaken in conjunction with this phase of the investigation. This petroleum facility was evaluated using the Site Investigation Expressway protocol.

The facility has been a petroleum bulk plant since 1968. The facility has been impacted by a series of underground and above ground storage tank spills and leaks since the mid 1970's. An investigation of a reported spill at the facility by the Vermont Department of Environmental Conservation occurred June 9, 1994. As a result of that inspection, a notice of violation was issued alleging that unleaded gasoline was observed to be leaking from the shutoff valve of the center 10,000 gallon aboveground storage tank (AST) at a rate of 1 drop every four seconds. The area immediately under this AST was reported saturated with free product. Petroleum staining beneath the dispenser for the diesel AST was observed. Dead vegetation was observed near the outlet of the drainage pipe that discharges to the containment area. At the base of the 30,000 gallon #2 fuel oil AST, on the east end of the AST, was an area of ~ 5'x8' where a vegetative kill was observed. Two monitoring wells, downgradient of these tanks were checked and peak levels of 92-101 parts per million (ppm) were observed on an HNu photoionization detector (PID). No evidence of contamination was observed in the Castleton River. Actions including the repair of the leaking valve; notification of the Department of Labor and Industry and the initiation of a site investigation to determine the severity of contamination were promptly undertaken.

The site investigation and initial corrective actions included an intrusive investigation; groundwater, product and soil sampling, and analysis to better characterize the nature and extent of contamination at the site and free product recovery. This included development of eight new monitoring wells onsite with volatile organic chemicals (VOC) analysis using EPA Methods 8260 and 8020; Total Petroleum Hydrocarbons (TPH), using EPA Method 8015 for volatiles and EPA Method 418.1 for volatiles and semivolatiles, viscosity and flash point and EPA Method 8100 for a TPH Scan for fuel matching; some soil samples were also analyzed for TPH using EPA Method 418.1. The water in the bermed area was sampled and analyzed using EPA Method 8260. Kerosene and gasoline appear to predominate the products identified in the monitoring wells. A weathered gasoline was identified in MW-11. This hand dug monitoring well is located just north of the Clarendon and Pittsford Railroad tracks.

The results of the initial investigation showed substantial amounts of free product on the water table at MW-1, MW-2, MW-7, MW-9 and MW-10. Efforts were initiated to reduce the amount of free product on the water table. To date, ~268 gallons of free product, which is classified as a hazardous waste because of its Benzene levels and characteristic of ignitability, has been recovered for proper disposal from the site. Soil and groundwater onsite is contaminated by VOC's associated with petroleum products.

The potential sensitive receptors for this site include: the Castleton River which borders the site to the east; the eastern border of Castleton Fire District # 1 Well Head Protection Area (WHPA) for their gravel well which is ~ 200 feet west of the Hutchins and White property and the site is within the 3,000 foot radius of the Interim Well Head Protection Area for the two bedrock wells at the Fort Warren Trailer Park.

1.0 INTRODUCTION

The following report provides information on the site investigation and initial corrective action feasibility investigation associated with petroleum contamination from previously removed underground storage tanks (USTS) and existing above ground tanks (ASTS) located at the Hutchins and White petroleum bulk plant on Main Street (Rte 4A) in Castleton, Vermont (See Figure 1). An investigation was prompted by the Department of Environmental Conservation (VTDEC) as a result of a report of a spill at the facility. Unleaded gasoline was observed to be leaking from a shutoff valve of the center 10,000 gallon AST. Petroleum staining beneath the dispenser for the diesel AST was observed. At the base of the 30,000 gallon #2 fuel oil AST, on the east side of the AST, was an area of dead vegetation that was stained by a previous overfill of this tank. Dead vegetation was observed near the outlet of the drainage pipe extending towards the spill containment basin. Several used absorbent pads were discovered in the containment basin in water that exhibited a visible sheen. Two monitoring wells, which had been installed as a result of observed groundwater contamination during the removal of five USTs in 1989, were checked and peak levels of 92-101 parts per million (ppm) were observed on an HNu photoionization detector (PID). A Notice of Alleged Violation was issued to Owner Services, Inc. as a result of the VTDEC investigation.

This report documents the work that has been performed on the site to date. It provides information on the geology and the hydrogeology of the site, the site history, environmental monitoring and sampling, initial remedial actions, conclusions and recommendations about proposed interim corrective action at the site.

1.1 PURPOSE

The purpose of this site investigation is to determine the degree and extent of groundwater contamination associated with the site and to determine the potential for sensitive receptors to be impacted. This has been initiated by performing soil borings and installing monitoring wells and collecting and analyzing groundwater and soil samples on and off site. It also included the initiation of free product recovery from selected wells on site and the development of proposed interim corrective action measures for the site.

1.2 SCOPE OF WORK

The information used to develop this report was obtained through the following activities: (1) drilling and installing eight monitoring wells; (2) collection and analysis of groundwater and soil samples from on site and off site monitoring well locations and one surface water sample from behind the spill containment berm; (3) well elevation and location survey; (4) initial corrective actions taken on the site to manage free phase petroleum product; and (5) reporting of results summarizing the investigation and providing conclusions and recommendations.

The methodologies of the investigation, tabulation of the field data, and an analysis and summary of the results are detailed in the body and the appendices of this report.

2.0 SITE DESCRIPTION

The Hutchins and White petroleum bulk plant is at 43°36'41" N latitude and 73°10'13" W longitude. The latitude and longitude was scaled from the U.S.G.S 7.5 minute Poultney, Vermont topographic map. The site is

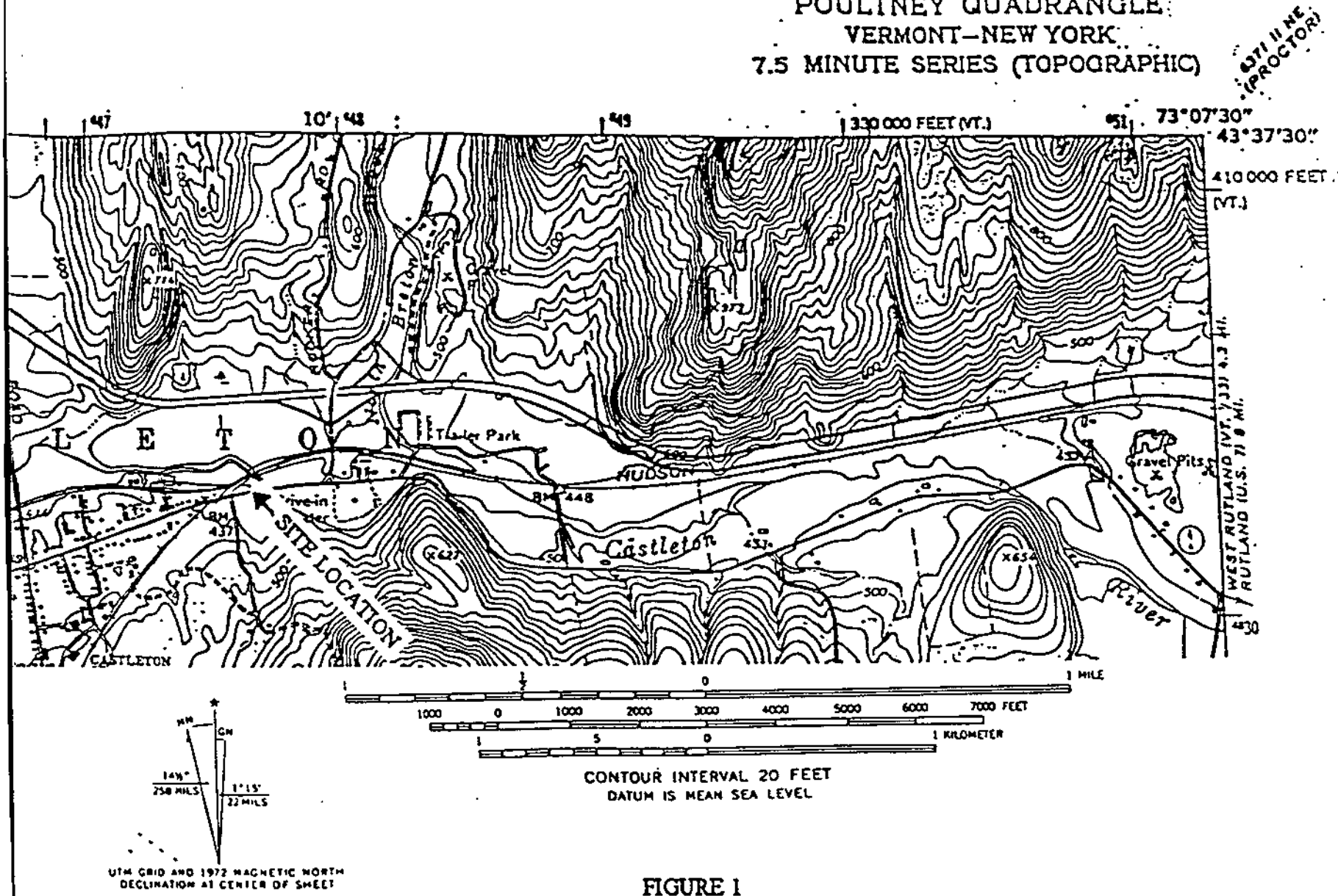


FIGURE 1

Area Map
U.S.G.S. 7.5 Min.
Topo Series

Poultney Quad.
1"=2,000'

Hutchins and White
Castleton, Vermont

located on the north side of Main Street, Vermont Route 4A, approximately 1,200 feet west of the intersection of Rt. 4A and the Rt. 4 access road. The 1.15 acre site consists of a slab on grade, one story, ~2,100 square foot garage and office building and six above ground petroleum storage tanks and related loading and offloading racks and piping. There is also a 550 gallon #2 fuel oil UST that provides fuel for heating the building. All of the fuel tanks are located east of the building. Water is supplied to the facility by Castleton Fire District # 1. There is an on site septic system to the west of the building. An out of service floor drain is located within the garage.

The topography of the site is fairly flat with the northern border sloping down to a drainage swale adjacent to the elevated Clarendon and Pittsford Railroad track embankment.There are two earthen berms that serve as spill containment areas. The first one serves to collect drainage from the southern and eastern portion of the bulk storage tanks. The second berm is located northeast of the tanks and is connected hydraulically to the first bermed area by a 4 inch PVC drain pipe. The drainage from the first containment area flows to the containment area located north of the storage tanks. The site is bordered on the east by the Castleton River, on the north by the Clarendon and Pittsford Railroad; just north of the Clarendon and Pittsford tracks, the property ownership is listed as "unknown" in the Town of Castleton tax records,on the west by Green Mountain Appliance and T.V. Company and on the south by Rt. 4A, just south of Rt. 4A the property is owned by R.A. Ellis, Inc (See Figure 2 and Table 1).

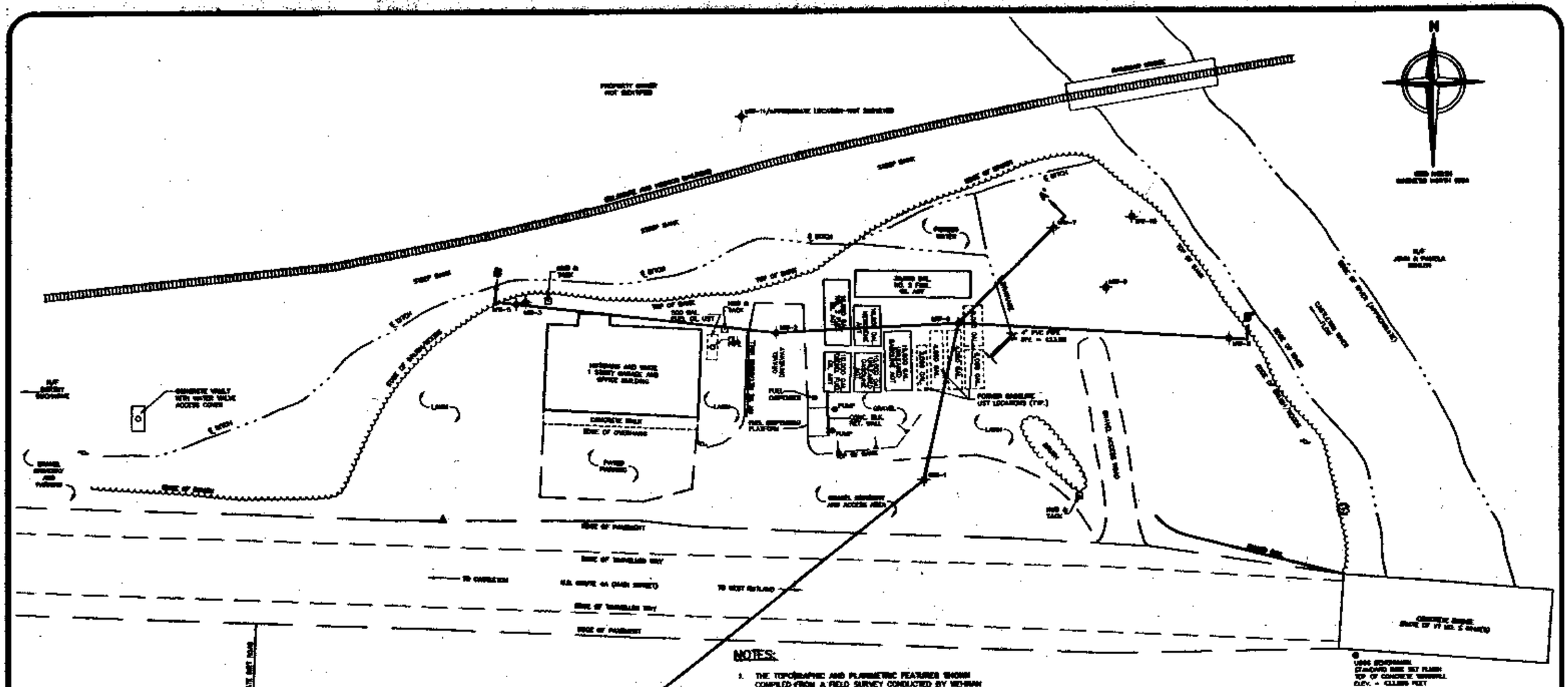
The site is within the three thousand foot radius of the Interim Wellhead Protection Area (IWHPA) designated for the two bedrock wells located at the Ft. Warren Trailer Park. The site is ~200 feet east of the Castleton Fire District #1 Wellhead Protection Area (WHPA) designated for their sand and gravel well. The Castleton River is the only other potential sensitive receptor for the site (See Figure 2A and Table 2).

3.0 SITE HISTORY

The site has been used as a petroleum storage facility since 1968 when Clayton and Ethel White purchased the property. The Chain of Title shows ownership transferred to White's Enterprises, Inc. from March, 1974 to November, 1977 under Forest Buckland; White's Fuel Service, Inc. a/k/a/ W.F.S.Inc under Johnson and Dix from November, 1977 to November, 1987; B-W Realty under Johnson and Dix between November, 1987 and October, 1988 and Owner Services, Inc. from October, 1988 to the present. Prior to 1968, there were no structures or industrial/commercial activities identified on the parcel south of the railroad tracks. Earliest identified ownership of the property was prior to July of 1918 when the Hudson Valley Creamery Company had a creamery reportedly located north of the railroad on the property. The Dairyman's League, Inc. purchased the site in 1918 and owned it until January, 1928. From January, 1928 to January, 1968, the site was owned by members of the Burke family. From 1918 to 1968 the site was used for the collection and storage of local farmers milk for shipment out on the milk train identified (See Table 3). No structures currently exist that were associated with the dairy business. Currently the Castleton tax records do not identify the parcel north of the railroad as part of the Hutchins and White (Owner Services, Inc.) parcel.

It is reported that in the late 1960's or early 1970's there was a large depression located west of the current building that Clayton White allowed to be filled in by local residents who were permitted to dump unidentified materials into this hole.

Seven fuel oil and gasoline spills were identified for this site between January, 1975 and June, 1994 (See Table 4). The largest reported spill was 300 gallons of # 2 fuel oil in 1980 from an above ground tank (AST) overfill.



NOTES:

1. THE TOPOGRAPHIC AND PLANIMETRIC FEATURES SHOWN COMPILED FROM A FIELD SURVEY CONDUCTED BY WEHRAN ENCON ON SEPTEMBER 28, 1994.
2. THE HORIZONTAL GRID SYSTEM AS SHOWN IS BASED UPON OBSERVED MAGNETIC NORTH 1994 AND ESTABLISHED FROM FIELD SURVEY CONDUCTED BY WEHRAN ENCON. THE GRID SYSTEM IS THE WEHRAN ENCON "SITE" GRID SYSTEM AND HAS NOT BEEN RELATED TO ANY OTHER GRID SYSTEM THAT MAY EXIST.
3. THE VERTICAL DATUM IS EXPRESSED IN FEET AND IS BASED UPON A USGS DISK SET FLUSH IN THE TOP OF THE CONCRETE SOUTHWEST WINGWALL OF STATE OF VT BRIDGE NO. S 142(1) AS SHOWN ON THIS PLAN. THE REPORTED ELEVATION OF SAID DISK IS 433.865' BUT HAS NOT BEEN CONFIRMED WITH THE USGS.
4. THE HORIZONTAL AND VERTICAL SURVEY CONTROL DATA AS SHOWN WAS BELIEVED TO BE CORRECT AT THE TIME THIS PLAN WAS PRODUCED. ANY AND ALL DATA IS SUBJECT TO CHANGE WITH TIME. WEHRAN ENCON ASSUMES NO RESPONSIBILITY FOR THE USE OF INCORRECT OR OUTDATED INFORMATION.
5. A PROPERTY BOUNDARY SURVEY OR RECORD SEARCH HAS NOT BEEN CONDUCTED. PROPERTY BOUNDARIES, EXPRESSED OR IMPLIED ARE NOT SHOWN ON THIS PLAN.
6. "THIS DOCUMENT IS PREPARED SPECIFICALLY FOR THE CLIENT AND PROJECT DESIGNATED HEREON. MODIFICATION, ALTERATION, REVISION, DUPLICATION, OR USE WITHOUT THE CONSENT OF WEHRAN ENGINEERING CORP. IS PROHIBITED. COPYRIGHT 1994 WEHRAN ENGINEERING CORP. ALL RIGHTS RESERVED."
7. UNDERGROUND STORAGE TANK LOCATIONS BASED UPON STATE OF VERMONT BULK PLANT NOTIFICATION FORM SKETCH FILED IN BOOK 66, PAGE 468 OF THE TOWN OF CASTLETON LAND RECORDS.

LEGEND:

- SURVEY CONTROL P.K. NAIL
- SURVEY CONTROL HUB AND TACK
- BENCHMARK
- PUMP
- EDGE OF PAVEMENT
- MW-5 MONITORING WELL AND IDENTIFIER
- N/F NOW OR FORMERLY
- EDGE OF TRAVELLED WAY
- CENTERLINE OF DITCH
- EDGE OF BRUSH/WOODS
- RAILROAD TRACK
- AGT ABOVE GROUND TANK
- A A' GEOLOGIC CROSS SECTION LOCATION

Wehran Engineering Corp.

DATE	11/18/94
DWN.	DDW
APPR.	
REVIS.	
PROJECT NO.	04794.01

FIGURE 2
MALTER CONSULTING INC.
HUTCHINS & WHITE/OWNER SERVICES INC.
ROUTE 4A CASTLETON, VERMONT
SITE PLAN WITH CROSS SECTION LOCATIONS

ene-endv2-f:\DWG\04794\01\MALF-010

TABLE 1

ADJACENT LANDOWNERS

PROPERTY OWNER	ADDRESS	PHONE NUMBER
Owner Services Inc. Chris Keyser, President site owner and operator	41 School Street, Proctor VT 05765	1-802-459-3349
Dorothy Ducharme	Box 236, Castleton VT 05735	1-802-468-5833
R.A. Ellis, Inc.	Box 296, Castleton VT 05735	1-802-468-5556
John and Pamela Rehlen	Box 275, Castleton VT 05735	1-802-265-4775
Clarendon and Pittsford Railroad,. Charley Bickford Vice President, Operations	53 Park Street, Rutland VT 05701	1-802-775-4356.

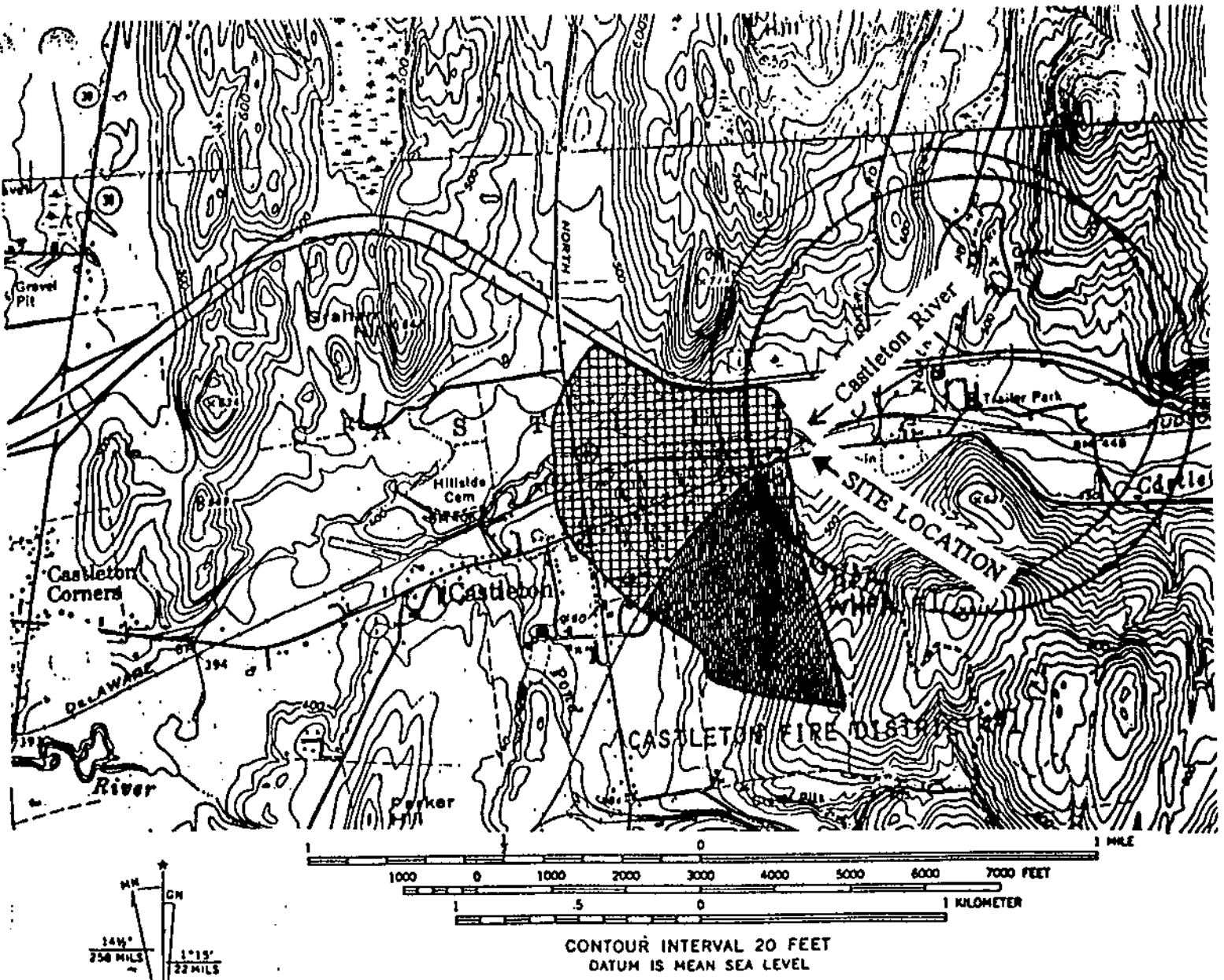


FIGURE 2A

Potential Receptor Map
Castleton Fire District #1 WHPA(on left), Ft. Warren Trailer Park IWHPA(on right) and Castleton River

U.S.G.S. 7.5 Min.
Topo. Series

Poultney Quad.
1" = 2,000'

Hutchins and White
Castleton, Vermont

TABLE 2

SENSITIVE RECEPTORS

RECEPTOR	ADDRESS	PHONE NUMBER
Ft. Warren Trailer Park IWHPA,	Jeffrey Billings 130 S. Main Street Rutland, VT 05701	1-802-775-3335
Castleton Fire District # 1 WHPA	Richard Hall, Sr. Bomoseen, VT 05732	1-802-468-5048

TABLE 3

HUTCHINS AND WHITE PROPERTY OWNERSHIP HISTORY

PROPERTY OWNER	DATE OF PURCHASE
Owner Services, Inc.	10/3/88
B-W Realty (Johnson and Dix)	11/13/87
White's Fuel Service, Inc. a/k/a W.F.S., Inc. (Johnson and Dix)	11/18/77
White's Enterprises, Inc. (Forest Buckland)	3/26/74
Clayton E.and Ethel M. White	1/3/68
Raymond and Alice Burke	10/5/56
Thomas A. Burke	1/13/28
Dairyman's League, Inc.	7/2/18
Hudson Valley Creamery Co.	prior to 7/2/18

TABLE 4

SPILL HISTORY

DATE	PRODUCT SPILLED	VOLUME	SOURCE
1/30/75	# 2 Fuel Oil	15 Gallons	Tank overfill
8/26/80	# 2 Fuel Oil	300 Gallons	Tank overfill
1/20/83	# 2 Fuel Oil	200 Gallons	Valve left open
10/14/88	# 2 Fuel Oil	100 Gallons	Tank overfill
5/17/90	Gasoline	Unknown	Discovered during UST removals
11/13/91	# 2 Fuel Oil	100 Gallons	unknown
6/9/94 (Observed-occurred during winter)	# 2 Fuel Oil	~100 Gallons	Tank overfill

On May 17, 1990, five gasoline underground storage tanks (USTs) that had been in the ground since 1973, were removed from the site. These included: one 3,000 gallon UST; two 4,000 gallon USTs and two 6,000 gallon USTs. The USTs were removed in cooperation with the Petroleum Sites Management Section (PSMS) who had a representative on site during part of the removal activity. Free product was observed floating on the groundwater as a result of tipping of one of the 6,000 gallon USTs during excavation. The soil in this area was monitored by the PSMS and was reported to be 0-40 ppm. During the removal of the 3,000 and 4,000 gallon USTs, petroleum contamination in soils ranged from 100 to 150 ppm. This was reported as indicative of a possible groundwater problem on site from the USTs. The PSMS requested that the owner install at least two monitoring wells on site. This was accomplished. Samples were collected by the PSMS on September 17, 1990 and analyzed for volatile organic compounds. None were detected in the monitoring well located nearest the Castleton River, however < 10 parts per billion (ppb) Methyl tertiary Butyl Ether (MTBE) was detected in the monitoring well located closest to the location of the former USTs. These monitoring wells are identified on Figure Two as MW-9 and MW-10. Based on these findings, on October 22, 1990, the PSMS indicated that White's Fuels satisfied the Department of Environmental Conservation's (VTDEC) requirements and they closed the site.

An investigation of a reported spill at the facility by the VTDEC occurred on June 9, 1994. As a result of that inspection, a notice of violation was issued alleging that unleaded gasoline was observed to be leaking from the shutoff valve of the center 10,000 gallon AST at a rate of 1 drop every 4 seconds. The area immediately under this AST was reported saturated with free product. Petroleum staining beneath the dispenser for the diesel AST was observed. Dead vegetation was noted near the outlet of the drainage pipe that discharges to the northern containment area. At the base of the 30,000 gallon #2 fuel oil AST, on the east end of the AST, was an area of ~ 5'x8' where a vegetative kill was observed. The two previously installed monitoring wells (MW-9 and MW-10), located east of the tanks, were checked and peak levels of 92-101 ppm were observed on an HNu PID. No evidence of contamination was observed in the Castleton River. Actions including the repair of the leaking valve, notification of the Department of Labor and Industry and the initiation of a site investigation to determine the severity of contamination was promptly undertaken.

As a result of the first phases of this investigation, initial corrective actions in the form of free product removal were begun on September 12, 1994. To date, ~ 268 gallons of product from been collected from monitoring wells located on site (See Appendix A).

4.0 FIELD INVESTIGATION METHODOLOGY AND RESULTS

The following sections provide a summary of the work conducted at the site and the results of the field investigation.

4.1 SOIL BORINGS/MONITORING WELL INSTALLATIONS

In order to determine the degree and extent of possible groundwater and soil contamination at the Hutchins and White site, on September 12, 1994 a series of three soil borings that were completed as monitoring wells (MW1, MW-2 and MW-3) were completed by Adams Engineering of Underhill, Vermont and were supervised by Malter Consulting, Inc.'s geologist. Large pieces of buried fill, coarse gravel conditions at the site, and free product at MW-1 and MW-2 necessitated the Adams Engineering minirig drill, using a vibratory driven 2 3/8 inch inside diameter by 5 foot sampler tube with polyethylene liner and 4 inch solid augers to be supplemented by larger equipment. This included drilling five additional soil borings that were completed as monitoring wells

(MW-4, MW-5, MW-6, MW-7 and MW-8) on September 21 and September 22, 1994. This work was accomplished by Tri State Drilling and Boring. Inc. of West Burke, Vermont, using their B-57 drill rig and was supervised by Malter Consulting, Inc's geologist.Tri State borings were advanced with 4 inch inside diameter (ID) hollow stem augers and continuous split spoon samples were obtained with a 2 inch outside diameter (OD), 24 inch long split spoon sampler. As noted in the site history, MW-9 and MW-10 had been installed in 1990 in connection with the UST investigation. These 4" wells were installed with a backhoe and no well log information is available on them. MW-9 is approximately 5.85 feet deep and MW-10 is about 5.69 feet deep. MW-11 located north of the railroad tracks was installed by hand by the Malter Consulting, Inc. geologist using a posthole digger. This 2" well is 3.58 feet deep.

Geologic descriptions of the samples were made in the field in accordance with the Modified Burmister Soil Classification System and detailed geologic logs were prepared. A drillers boring log was also maintained for each well (See Appendix B).

To prevent cross contamination, all of Adams Engineering and Tri State Drilling and Boring, Inc.'s downhole tools and equipment were steam cleaned prior to drilling each well.

The monitoring wells were established to determine the areal extent of possible groundwater contamination and the direction of groundwater flow. MW-1, which was located south of the petroleum storage tanks and north of Rt. 4A was going to be the up gradient well. However, free product was detected at ~ 10 feet over the water table. During well development ~ 3.5 gallon of free product was collected from this well. Due to drilling limitations, only 5 feet of screen were installed in MW-1, MW-2 and MW-3. MW-1 was screened 2.2 feet into the water table and 2.8 feet above the water table. MW-2 was screened 2 feet into the water table and 3 feet above the water table and MW-3, is not being used as a monitoring well because it is screened just at the top of the water table and the screen extends five feet above the water table. These wells were capped at the bottom of the screened section with a PVC well cap. These monitoring wells, which were installed by Adams Engineering, were constructed of 1.5 inch ID Schedule 40, flush threaded PVC riser pipe and factory slotted 0.010 inch commercial flush threaded PVC well screen. With the well screen in place, a clean silica sand pack was installed in the annular space from the bottom of the well screen to between 3.2 feet , 2.2 feet and 2 feet above the top of the well screen for MW1-3 respectively. A bentonite slurry seal ranging from 3 feet, 3.5 feet and 2 feet respectively was placed above the sand pack. This was followed by backfilling with native soil to within ~ .5 feet of the ground surface for each of these wells. Each of these monitoring wells has a cemented, flush mounted road box. The productive monitoring wells installed by Adams Engineering were developed with a peristaltic pump to remove cuttings, clean the well screen and improve the hydraulic connection between the monitoring well and the adjacent water bearing strata.

MW-4, MW-5, MW-6, MW-7 and MW-8 were all constructed with 10 feet of well screen. MW-5, MW-6 and MW-8 were screened ~ 5 feet into the water table and 5 feet above the water table. MW-4 was screened to 1.3 feet above the water table and MW-7 was screened to 3.5 feet above the water table. Each of these wells was capped at the bottom with a PVC well cap. All these monitoring wells but MW-4 were constructed with 2 inch ID Schedule 40, flush threaded PVC riser pipe and factory slotted 0.010 inch commercial flush threaded PVC well screen. MW-4 was constructed with 0.020 inch commercial flush threaded PVC well screen. A clean silica sand pack was installed in the annular space from the bottom of the well screen to .4 foot above the well screen in MW-4, 1.8 feet above the screen in MW-5, .5 feet above the screen in MW-6, .2 feet above the screen in MW-7 and .2 feet above the screen in MW-8. A seal of 3/8 inch bentonite hole plug was placed above the sand pack for these wells. The seal was .6 feet in MW-4, 2 feet in MW-5, 1 foot in MW-6, .6 feet in MW-7 and .6 feet MW-8. This was followed by backfilling to just below the ground surface with sand in MW-4, MW-6, MW-7 and MW-8. MW-5 was backfilled with native soil followed by sand to just below the ground surface. Each of these wells has a cemented, flush mounted road box. These monitoring wells were developed by bailing and

flushing techniques to remove cuttings, clean the well screen and improve the hydraulic connection between the monitoring well and the adjacent water bearing strata. MW-11 was constructed with 3.44 feet of well screen. It was screened ~1.28 feet into the water table and 2.16 feet above the water table. The well was capped at the bottom with a PVC well cap. This well was constructed with 2 inch ID Schedule 40, flush threaded PVC riser pipe and factory slotted 0.010 inch commercial flush threaded PVC well screen. A clean silica sand pack was installed in the annular space from the bottom of the well screen to .07 feet above the screen. A .07 foot seal of bentonite hole plug was placed from the top of the sand pack to the ground surface. The PVC riser extends 1.2 feet above grade for this well.

4.2 SITE GEOLOGY

The surficial geology at the site was documented by examining and classifying soil samples collected during the subsurface drilling program. Geologic cross-section A-A' and B-B' that provide a vertical perspective of subsurface conditions are presented on Figure 3 (the section locations are presented on Figure 2). Soil borings indicate a fill layer (i.e., predominantly bricks, cinders, silt, sand and gravel) approximately 10 feet thick in the immediate vicinity of the building and fuel dispensing area. Based on historical information, the fill material was used to level and expand this portion of the site along Route 4A. Native stream alluvium deposits (i.e., predominantly silt, sand and gravel) were encountered beneath the fill layer, other areas of the site, and at off-site locations to the south (MW-4) and north (MW-11). A silt/clay deposit was encountered in the bottom two feet of monitoring well locations MW-6 and MW-7. The thickness of this silt/clay deposit is not known.

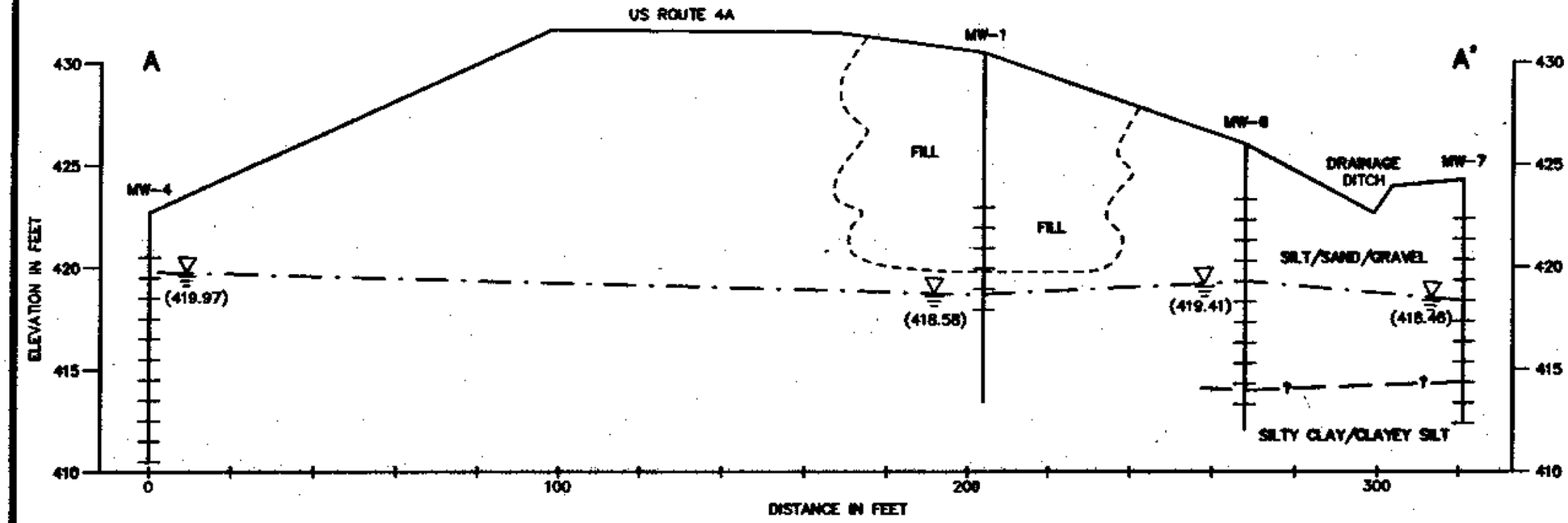
According to the Surficial Geologic Map of Vermont (1970), surficial materials in the vicinity of the site are primarily classified as recent stream alluvium deposits. These sediments are composed of predominantly sands and gravels, and are fair to moderately well drained. Stewart (1972) describes the subsurface materials in the Castleton River valley near the site as lake sediment sands and gravels with interbedded outwash gravels.

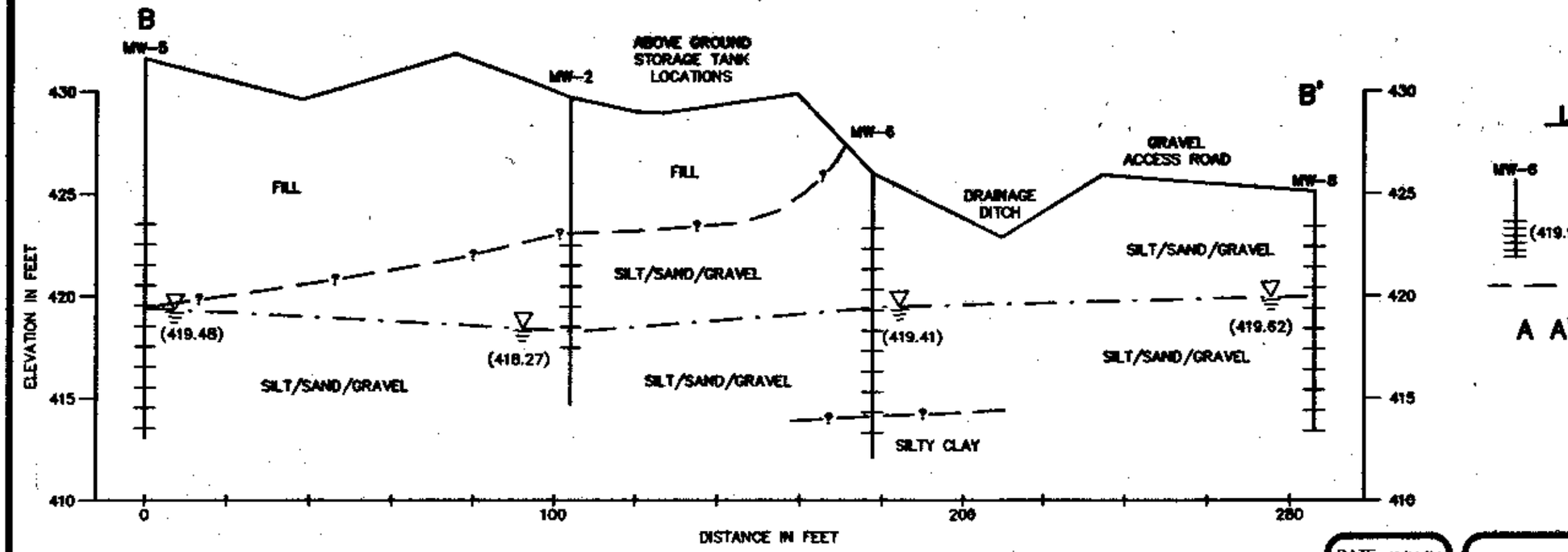
No site-specific information on the bedrock is available. No bedrock outcroppings have been identified at the site. However, according to the State of Vermont Soils Laboratory, soil boring logs from the Castleton River Bridge Auger Borings (1963) adjacent to the site, auger refusal was encountered between 53 to 68.5 feet below ground surface.

According to Stewart (1972), the bedrock geology in the vicinity of the site has been mapped as the Hatch Hill and West Castleton Formation. The Hatch Hill is "a gray, calcareous quartzite" and the West Castleton is a "gray to black slate that is siliceous in places and contains pyrite." The Centennial Geologic Map of Vermont indicates the presence of the Pinehill Thrust Fault in the vicinity of the site.

4.3 SITE HYDROGEOLOGY

Water level data recorded from onsite monitoring wells MW-5 and MW-8 and off-site location MW-4 on September 26 and 27, 1994, was used to construct a groundwater contour map across the site. Monitoring wells containing floating product were not used to construct a groundwater contour map because accurate product thickness data was not available during the September 26 and 27, 1994, measuring dates for correction factor calculations. Depths to groundwater at these three locations range from approximately 3 feet to 12 feet below ground surface. The horizontal hydraulic gradient calculated is 0.003 feet per foot (ft/ft), with groundwater flow in a northerly direction towards the Castleton River (Drawing Number 1, in back pocket).





LEGEND

- MW-6 — MONITORING WELL LOCATION AND IDENTIFIER
- (419.97) — MONITORING WELL SCREEN DEPTH INTERVAL AND WATER ELEVATION MEASURED ON SEPT. 26 & 27, 1994
- — — — GEOLOGIC CONTACT
- A A' — GEOLOGIC CROSS SECTION IDENTIFIERS

SCALES

HOR. 1" = 30'
VERT. 1" = 6'

Wehran emcon Northeast
Wehran Engineering Corp.

DATE 11/14/94
DWN. DDW
APPR. ———
REVIS. ———
PROJECT NO. 04794.01

FIGURE 3
MALTER CONSULTING INC.
HUTCHINS & WHITE/OWNER SERVICES INC.
ROUTE 4A CASTLETON, VERMONT
GEOLOGIC SECTIONS

ene-ondw2-F:\DWG\04794\01\MALF-032

Generalized regional hydrogeologic information is available for the Castleton area ("Groundwater Favorability Map of the Otter Creek Basin, Vermont"). According to this information, the site is underlain by thick deposits of coarse-grained stratified glacial drift that have excellent groundwater potential

4.4 ENVIRONMENTAL MONITORING AND SAMPLE COLLECTION

To characterize the site, a series of monitoring activities were undertaken. These included: photoionization detector (PID) screening of the 5 foot samples collected in the polyethylene tubes and the split spoon samples collected during monitoring well and soil boring activities; collection and analysis of groundwater samples from monitoring wells 1,2,4,5,6,7,8,9,10 and 11; collection and analysis of soil samples from monitoring wells 4,5,6,7,8 and 11; collection and analysis of surface water in the bermed containment area; monitoring the drainage swale on the north edge of the border with the PID and visually inspecting the Castleton River bank from the border of the Hutchins and White property to ~ 1,500 feet west of the site.

During drilling activities soil samples recovered were monitored using a 10.2 electron volt HNu PID which was calibrated at the beginning of each day. During the first day of drilling, September 12, 1994, for MW-1, MW-2 and MW-3, there was an equipment malfunction and no PID reading were able to be taken.

During the drilling of MW-1, located south of the bulk tanks on the graveled apron north of Rt. 4A, which was planned to be the up gradient well, a hydrocarbon odor was detected at a depth of between 8 and 9 feet and at ~ 10 feet free product was detected and floating free product was present in the coarse sand and fine gravel on the water table at ~10.5 feet of depth. At MW-2, located east of the garage on the north edge of the driveway, a hydrocarbon odor was detected at ~ 8.5 feet and free product was identified in the coarse sand and medium gravel on the water table at 10.2 feet. MW-3 was located west of the garage on the north edge of the lawn. No hydrocarbon odor was detected during the drilling of this well. The water table was reached at 12 feet and refusal probably from fill dumped on site, occurred at 13.1 feet. This well was replaced during the second round of drilling in order to penetrate further into the water table.

A second round of drilling occurred on September 21 and 22, 1994. PID monitoring of continuous split spoon samples was accomplished during this phase of drilling. Total Petroleum Hydrocarbon analysis by EPA Method 418.1 was performed on soil samples that exhibited the highest levels of volatiles in the split spoons or if no elevated readings were detected, the sample was taken at the water table during this drilling (See Appendix C). In order to get an up gradient well, we installed MW-4 south of Rt. 4A in a corn field on the Ellis property. No volatile organics were detected during the drilling of this well. At MW-5, which was the replacement for MW-3, a reading of 6 ppm between 4 to 6 feet was detected in medium sand and fine to medium gravel. This was the only depth that volatiles were detected in this well. MW-6, located south of the 30,000 gallon # 2 fuel oil tank, was installed in the vicinity of the 5 gasoline USTs that had been removed in 1990. In the upper two feet, the silty sand and fine gravel had exhibited an HNu reading of 1 ppm. This increased to 60 ppm between 2 and 6 feet in a sand to sand and clayey silt. At 6 to 8 feet, with the water table at ~7.6 feet, levels of 120 ppm were detected in the sand and silt. This was the highest level reached during the drilling activity, although the same level was detected during drilling in MW-7. At 8 to 10 feet the level in the fine gravel and silt and sand was down to 80 ppm. At 10 to 12 feet the level was 7 ppm in sand and gravel and back to < 1 at 12 to 14 feet in coarse sand and gravel grading to a silty clay. MW-7, located east of the containment berm on the north edge of the property and west of the Castleton River, had a level of 1 ppm between 2 and 4 feet in a medium sand and fine gravel. The level rose to 120 ppm at 4 to 8 feet with the water table at 5.5 feet in a silty sand and gravel. Between 8 and 10 feet, the level dropped to 4 ppm in a medium sand and gravel and back to less than 1 between 10 and 12 feet in a fine gravel, grading to clayey silt. MW-8, located on the eastern border of the property about

9 feet west of the Castleton River, did not show any elevated levels of volatile organic hydrocarbons. MW-11, which was hand dug north of the railroad embankment, about 129 feet west of the railroad bridge abutment, had a reading of 1 ppm at 2 to 3 feet in a medium to coarse gravel with the water table at 2.3 feet. The level increased to 8 ppm between 3 and 4 feet in a fine to medium sand and gravel and went back down to 4 ppm at 4 to 4.1 feet in a coarse gravel.

On September 26 and September 27, 1994 a round of water quality sampling was undertaken for the site. Each of the functioning monitoring wells was bailed until the pH, specific conductance, and the temperature values stabilized. A minimum of three well volumes of water were purged from each sampled well with a dedicated PVC bailer prior to sampling. During this round of sampling the free product thickness was measured by bailers and the water level was measured by tape. All subsequent monitoring of the wells was done using an ORS Oil Water Interface probe and a water level indicator tape. Samples for MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10 and the surface water behind the containment berm were collected and analyzed for aromatic organic hydrocarbons and Methyl tertiary Butyl Ether using EPA Method 8260 (See Table 5 and Appendix C). Free product was present in MW-1, MW-2, MW-7, MW-9 and MW-10. The sample from MW-2 was 100 % free product. Samples were also analyzed for Volatile Total Petroleum Hydrocarbons using EPA Method 8015 and Extractable Total Petroleum Hydrocarbons, using EPA Method 418.1. Followup samples using EPA Method 8020 were collected for MW-4 and MW-5 on October 27, 1994. A sample was collected from MW-11 on October 27, 1994 and analyzed using EPA Method 8260 and EPA Method 8100.

As part of the quality assurance and quality control protocol, during both sampling rounds, a trip blank was carried to the site and a distilled water field blank was taken at the site using a clean PVC bailer. These samples were also analyzed using EPA Method 8260. Duplicate samples were collected at each monitoring site.

All samples were delivered in coolers to SCITEST, Inc. of Randolph, Vermont. The complete analytical results are found in Appendix C.

The results of the sample analysis on September 26-27 and October 27, 1994 showed that there was significant groundwater contamination on this site. Benzene exceeded the Primary Groundwater Quality Standards at MW-1 at 1,020 ppb, MW-2 at 510,000 ppb, MW-6 at 969 ppb, MW-7 at 2,760 ppb, MW-8 at 87 ppb, MW-9 at 2,520 ppb, MW-10 at 715 ppb and MW-11 at 454 ppb. MW-11 which is an off site well required notice to the Secretary in accordance with Chapter 12, Section 709 (1) (a) of the Ground Water Protection Rule and Strategy. 1,2-Dichloroethane also exceeded the Primary Standard for MW-11 at 14 ppb. Ethylbenzene exceeded the Primary Standard at MW-2 at 1,230,000 ppb, MW-7 at 864 ppb and MW-9 at 1,000 ppb. Meta and para Xylene exceeded the Primary Standard at MW-1 at 1,680 ppb, MW-2 at 4,740,000 ppb, MW-6 at 1,150 ppb, MW-7 at 3,180 ppb, MW-9 at 3,660 ppb and MW-10 at 2,270 ppb. Ortho-Xylene exceeded the Primary Groundwater Quality Standard at MW-1 at 833 ppb, MW-2 at 1,860,000 ppb, MW-7 at 1,280 ppb, MW-9 at 1,440 ppb and MW-10 at 953 ppb. The Preventive Action Limits for 1,2-Dichloroethane were exceeded at MW-8 at 2.6 ppb. Toluene exceeded the Preventive Action Limits at MW-10 at 1,350 ppb. Ethylbenzene exceeded the Preventive Action Limits at MW-1 at 435 ppb and MW-10 at 552 ppb.

Sample analysis using EPA Method 8100 for extractable petroleum hydrocarbons showed the presence of kerosene in MW-2 and MW-9 and indicated the presence of gasoline by chromatographic fingerprint in MW-11, MW-7, MW-6, MW-1 and possibly MW-2 by (Method 8015). A mixture of products was evident in most wells. However with MW-11, when analyzed by Method 8100, no kerosene was detected at the 1 ppm limit of detection. This chromatogram was compared to a fresh gasoline chromatogram taken from a tank on the site and there was evidence of loss of early eluting components which indicates that the gasoline in MW-11 is not fresh and could be a weathered product. Method 8260 for this well also indicated the volatile constituents of gasoline were present including MTBE, 1,2 Dichloroethane, and BTEX constituents.

TABLE 5
9/26-9/27/94 WATER QUALITY RESULTS

Parameter	MW-1	MW-2	MW-4**	MW-5**	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	Berm Surface Water
Methylene Chloride*	BPQL	BPQL	1.2	1.2	BPQL	BPQL	1.3	BPQL	BPQL	BPQL	BPQL
Methyl tertiary Butyl Ether	1,470	BPQL	BPQL	BPQL	185	230	BPQL	BPQL	BPQL	65	BPQL
Benzene	1,020	510,000	BPQL	BPQL	969	2,760	87	2,520	715	454	BPQL
1,2-Dichloroethane	BPQL	BPQL	BPQL	BPQL	BPQL	BPQL	2.6	BPQL	BPQL	14	BPQL
Toluene	388	BPQL	1.1	1.2	BPQL	972	BPQL	BPQL	1,350	37	BPQL
Ethylbenzene	435	1,230,000	BPQL	BPQL	191	864	BPQL	1,000	552	63	BPQL
m & p-Xylene	1,680	4,740,000	BPQL	BPQL	1,150	3,180	BPQL	3,660	2,270	124	197
o-Xylene	833	1,860,000	BPQL	BPQL	BPQL	1,280	BPQL	1,440	953	21	127
Isopropylbenzene	BPQL	BPQL	BPQL	BPQL	BPQL	BPQL	1.6	BPQL	BPQL	BPQL	BPQL
n-Propylbenzene	BPQL	820,000	BPQL	BPQL	BPQL	162	BPQL	BPQL	BPQL	14	BPQL
1,3,5-Trimethyl benzene	415	1,870,000	BPQL	BPQL	108	359	BPQL	BPQL	BPQL	14	153
1,2,4-Trimethyl benzene	1,290	5,840,000	BPQL	BPQL	389	1,230	BPQL	1,800	1,030	6	514
sec-Butylbenzene	BPQL	520,000	BPQL	BPQL	BPQL	BPQL	BPQL	BPQL	BPQL	BPQL	BPQL
p-Isopropyl toluene	BPQL	510,000	BPQL	BPQL	BPQL	BPQL	BPQL	BPQL	BPQL	BPQL	BPQL
Naphthalene	497	1,120,000	BPQL	BPQL	129	590	BPQL	BPQL	794	11	560

EPA Method 8260. All results are in Parts Per Billion (ug/l), BPQL=Below Practical Quantification Limits. MW-1 diluted 1:250; MW-2 diluted 1:500,000; MW-4,5 and 8 were not diluted; MW-6 and 7 diluted 1:100; MW-9 diluted 1:1,000; MW-10 diluted 1:500; MW-11 diluted 1:10. Diluting the sample changes the detection and quantification limits by the same factor.*Methylene Chloride was also found in the lab, trip and field blanks; **MW-4 and MW-5 were resampled on 10/27/94 and analyzed using EPA Method 8020 and all samples were BPQL.

Total Petroleum Hydrocarbons by Method 418.1 showed levels that ranged from <1ppm for MW-4,5 and 8 all the way to 1,000,000 ppm in MW-2. Soil samples that were analyzed by EPA Method 418.1 had results that ranged from <25 mg/kg dry wt. in MW-4 and MW-8 to 3,000 mg/kg dry wt. in MW-7.

Samples taken at MW-4, the up gradient well and MW-5 were analyzed using Method 8260 and showed levels of Toluene of 1.1 ppb and 1.2 ppb respectively. In reviewing these results with the lab,we decided to rerun these samples using EPA Method 8020 to see if this was a false positive since so many of the other samples collected on September 26-27,1994 were highly contaminated and could have effected the results of these samples. On rerunning the samples the results were all Below Practical Quantitation Limit.

Samples collected at MW-2 and MW-9 were analyzed for viscosity and specific gravity. The viscosity of both samples was 3.3 (cpoise). The specific gravity of the sample at MW-2 was 0.8134 and at MW-9 it was 0.8181. A flash point test was done on a sample at MW-2 and the flash point was reported as < 50° F.

Field and trip blanks were analyzed during both rounds of sampling. Methylene Chloride was found in the lab, trip and field blanks of the September 26-27, 1994 sampling run. No other contaminants were identified in these samples.

PID monitoring in the soil in the containment pond area north of the 30,000 gallon # 2 fuel oil tank identified levels from 4 ppm at 0 to 6 inches to 15 ppm at 6 to 8 inches, 20 ppm at 8 to 10 inches and 28 ppm at 10-12 inches. A surface water sample collected in this containment area had elevated levels of total xylenes, 1,3,5-Trimethylbenzene, 1,2,4 -Trimethylbenzene and Naphthalene.

4.5 LOCATION AND ELEVATION SURVEY

On September 26, 1994, a location and elevation survey of the monitoring wells was conducted at the Hutchins and White facility. All documented elevations are in reference to the USGS disk set flush in the top of the concrete southwest wingwall of the State of Vermont Bridge No. S 142(1). The reported elevation of this disk is 433.665 feet. Elevations at the top of the PVC well casings and the ground surface were determined for all the monitoring wells.

5.0 INITIAL CORRECTIVE ACTIONS

A total of 268 gallons of free product has been pumped from the monitoring wells since September 12, 1994. This is an on going activity. A record of the amount of product will continue to be maintained. The free product is temporarily stored on site within the bermed area in a 3,000 gallon tank truck. The collected free product is a hazardous waste based on the characteristic of Ignitability (D001) and Benzene (D018). This waste will be properly transported and disposed of at an approved hazardous waste treatment or disposal facility.

Data will continue to be collected on a regular basis that measures free phase product thickness. Water table elevations will be recorded at the same time. Also, sample analysis of those monitoring wells that do not have free product in them will be accomplished.

The buried piping and valving associated with the 6 ASTs that rested directly on the ground was partially excavated. Some petroleum saturated soil was discovered around the gasoline ASTs and the kerosene AST. Inventory checks over the past year only identified one 50 gallon loss from the 10,000 gallon unleaded gasoline

AST. However, because of the difficulty in assessing the competence of the base of each of these tanks, Owner Services, Inc. has chosen to stop operating this site as a bulk petroleum storage facility. The tanks have all been drained and they are expected to be removed from the site next spring. This will factor into the development of the final corrective action plan for this site.

5.1 INTERIM CORRECTIVE ACTION MEASURES

Due to the presence of free phase product in monitoring wells in close proximity to the Castleton River, local hydraulic control of the aquifer in this area of the site is necessary as an interim corrective action response. A dual-pumping recovery system will be required to prevent potential impact to the Castleton River. The dual pump system will depress the water table, prevent the petroleum product from migrating to the Castleton River and concentrate free phase product for removal.

Based on the available information on the extent of free phase product adjacent to the Castleton River, a recovery well and dual-pumping system is proposed as an interim corrective action measure for this site. Furthermore, a system as proposed could potentially remain part of the final corrective action measure for the site.

Initially, a test pit investigation will be conducted in the area in order to collect additional information, including:

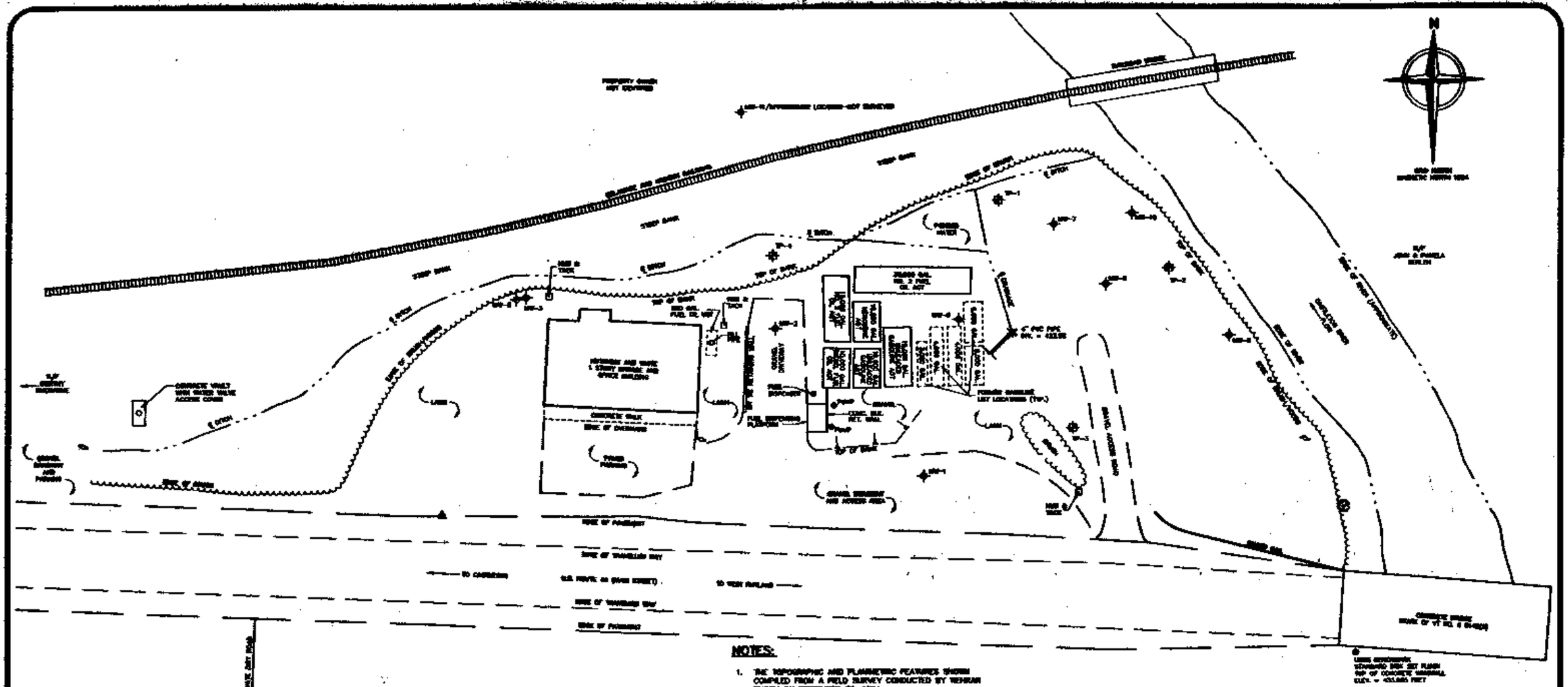
- extent and depth of free phase product,
- estimation of relative soil permeabilities,
- depth to confining layer, if present, and
- confirmation of depth to groundwater.

Approximate test pit locations are shown on Figure 4.

The test pit investigation results will be utilized to appropriately site the location of a 6-inch diameter, 20-slot, schedule 40 PVC recovery well. Preliminarily, it is estimated that the recovery well will be 15 feet deep and located in the vicinity of monitoring well MW-10.

After installation, the recovery well will be developed by removing a sufficient volume of water to remove sediments and improve the hydraulic connection between the well and the aquifer. During well development, an estimate of the well yield will be determined by measuring removed water volumes over time. Well development water will either be treated prior to discharge or stored onsite for later removal. It is estimated that 300 gallons of water will be removed during the well development process.

After completing the development of the recovery well, an 8-hour aquifer test will be conducted to further document well yield estimates and to determine the zone of influence. The aquifer test will be conducted by lowering the water level in the well so that the lower limit of the free phase product is slightly above the pump intake. The water level in the well will then be held approximately constant over a six to eight hour period. During this time, the response to the recovery well drawdown will be observed in the nearby existing monitoring wells. The zone of influence of the recovery well will then be estimated based upon the observed aquifer response. It is estimated that approximately 7,200 gallons of water will be withdrawn from the aquifer during the aquifer test. The discharge water will be treated through activated carbon units and discharged outside the zone of influence. The carbon unit treatment system will be sufficiently sized so that discharge water quality will be less than 50 parts per billion (ppb) total BTEX and less than 5 ppb total benzene.



NOTES:

1. THE TOPOGRAPHIC AND PLANIMETRIC FEATURES SHOWN COMPILED FROM A FIELD SURVEY CONDUCTED BY WEHRAN EMCON ON SEPTEMBER 26, 1994.
2. THE HORIZONTAL GRID SYSTEM AS SHOWN IS BASED UPON OBSERVED MAGNETIC NORTH 1994 AND ESTABLISHED FROM FIELD SURVEY CONDUCTED BY WEHRAN EMCON. THE GRID SYSTEM IS THE WEHRAN EMCON "SITE" GRID SYSTEM AND HAS NOT BEEN RELATED TO ANY OTHER GRID SYSTEM THAT MAY EXIST.
3. THE VERTICAL DATUM IS EXPRESSED IN FEET AND IS BASED UPON A USGS DISK SET FLUSH IN THE TOP OF THE CONCRETE SOUTHWEST WINGWALL OF STATE OF VT BRIDGE NO. S 142(1) AS SHOWN ON THIS PLAN. THE REPORTED ELEVATION OF SAID DISK IS 433.645' BUT HAS NOT BEEN CONFIRMED WITH THE USGS.
4. THE HORIZONTAL AND VERTICAL SURVEY CONTROL DATA AS SHOWN WAS BELIEVED TO BE CORRECT AT THE TIME THIS PLAN WAS PRODUCED. ANY AND ALL DATA IS SUBJECT TO CHANGE WITH TIME. WEHRAN EMCON ASSUMES NO RESPONSIBILITY FOR THE USE OF INCORRECT OR OUTDATED INFORMATION.
5. A PROPERTY BOUNDARY SURVEY OR RECORD SEARCH HAS NOT BEEN CONDUCTED. PROPERTY BOUNDARIES, EXPRESSED OR IMPLIED ARE NOT SHOWN ON THIS PLAN.
6.
7. UNDERGROUND STORAGE TANK LOCATIONS BASED UPON STATE OF VERMONT BULK PLANT NOTIFICATION FORM SKETCH FILED IN BOOK 68, PAGE 488 OF THE TOWN OF CASTLETON LAND RECORDS.

LEGEND:

△	SURVEY CONTROL P.K. NAIL	—— ——	EDGE OF PAVEMENT
⊟	SURVEY CONTROL HUB AND TACK	—— —— ——	EDGE OF TRAVELLED WAY
●	BENCHMARK	—·—·—	CENTERLINE OF DITCH
●	PUMP	∩∩∩∩∩∩∩∩	EDGE OF BRUSH/WOODS
⊕ MW-5	MONITORING WELL AND IDENTIFIER	‖‖‖‖‖‖‖‖	RAILROAD TRACK
⊞ TP-1	PROPOSED TEST PIT AREA	AGT	ABOVE GROUND TANK
H/F	HOW OR FORMERLY		

Wehran EMCON Northeast
Wehran Engineering Corp.

DATE	11/18/94
DWN.	DDW
APPR.	
REVIS.	
PROJECT NO.	04794.01

FIGURE 4
MALTER CONSULTING INC.
HUTCHINS & WHITE/OWNER SERVICES INC.
ROUTE 4A CASTLETON, VERMONT
PROPOSED TESTPIT LOCATIONS

sne-andw2-F:\DWG\04794\01\MALF-02D

The results of the aquifer test will be evaluated to:

1. Determine if the single recovery is sufficient to prevent migration of free product to the Castleton River; or

2. If additional recovery wells and/or interceptor trench(es) need to be installed to achieve the interim corrective action goal.

The proposed interim product recovery system will include a water table depression pump and product-only pump. The dual pumping system will be installed in the 6-inch recovery well. If the results of the aquifer test indicate that the zone of influence of the recovery well is limited, the influence of the recovery well will be increased by installing an interceptor trench positioned laterally from the recovery well and perpendicular to groundwater flow. The interceptor trench will be backfilled with a more permeable material to increase the flow of groundwater and product into the well. The water table depression pump will discharge groundwater to a granular activated carbon treatment system prior to discharge. The product-only pump will discharge product to a holding tank with overfill controls.

Petroleum contaminated soil located in the containment area north of the 30,000 gallon AST will be excavated and polyencapsulated on site.This will be accomplished during the same period that the test pitting activity is occurring in December. Some additional soil treatment will also be reviewed.

Additional monitoring wells located north of the railroad embankment should be developed to determine the northern extent of plume migration.There will be on going operation and maintenance of the proposed dual pump treatment system over the next six months. The effluent will be monitored and carbon treatment will be replaced as necessary.

A corrective action plan will be developed that incorporates information collected on the site between the beginning of the investigation and the on going interim remedial measures. The corrective action plan will be completed this winter.

6.0 SUMMARY AND CONCLUSIONS

The Hutchins and White petroleum facility has been impacted by a series of UST and AST releases. The site has stopped operating as a petroleum storage facility and all the ASTs have been drained.

Field investigations and initial corrective actions were begun in September, 1994. A total of 8 additional functioning monitoring wells were drilled on site in September and October of 1994 to characterize the areal and vertical extent of soil, groundwater and surface water contamination. The monitoring wells were also used to determine the groundwater flow direction and the degree of groundwater contamination. More subsurface information will be gathered during the interim corrective action phase that is planned for this winter.

Based on the results of the initial field work, all the monitoring wells except MW-4 and MW-5 exceeded the Primary Groundwater Quality Enforcement Standard for Benzene, including MW-11, the off site, shallow well that had 454 ppb of Benzene. As noted, corrective actions have been initiated on the site. 1,2-Dichloroethane exceeded the Primary Groundwater Enforcement Standard as well at MW-11. Ethylbenzene, m & p & o-Xylene

all exceeded the Primary Groundwater Quality Enforcement Standards on selective wells on site. Preventive Action Limits were also exceeded for Toluene, 1,2-Dichloroethane and Ethylbenzene at three different monitoring wells.

Free phase petroleum product in MW-1, MW-2, MW-6, MW-7, MW-9 and MW-10 is being measured and recovered on a regular basis. To date 268 gallons of free product, which is classified as a hazardous waste, has been collected for proper disposal at an approved hazardous waste treatment or disposal facility.

Three potential sensitive receptors are in the area. The Castleton River which borders the site to the east; the Ft. Warren Trailer Park Interim Wellhead Protection Area for their two bedrock wells which are located within 3,000 feet to the east of the site and the gravel well for Castleton Fire District # 1, which is just over 3,000 feet northwest of the site and the site is ~200 feet east of the Wellhead Protection Area for this Fire District. The Castleton River is most immediately threatened and the interim corrective actions proposed should address that threat.

Based on the initial investigation of this site, a corrective action plan and on going remedial activities must be undertaken to reduce the threat to human health and the environment from this site.

7.0 RECOMMENDATIONS

Malter Consulting, Inc. recommends that a corrective action plan be developed for this site. The plan should include data collected from the interim corrective action measures taken on the site. Quarterly groundwater and selective surface water sampling and analysis should be maintained for the site. Removal and proper disposal of free product from the monitoring wells should continue. The northern extent of the plume should be further defined through the development of additional monitoring wells. A portion of the costs associated with this site should be covered by the Petroleum Cleanup Fund.

8.0 REFERENCES

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Town of Castleton Record of Deeds

Town of Castleton Tax Map

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Vermont Department of Environmental Conservation, Hazardous Waste Management Regulations, Effective: August 15, 1991

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Vermont Department of Highways, Soils Laboratory, Subsurface Boring Logs-Castleton River Bridge May 9 and May 15, 1963,

APPENDIX A

BAILING LOGS

HUTCHINS AND WHITE

MW-1
9/12- 3.5 Gallons
9/22- 5 Gallons
10/5- 3.5 Gallons
10/14-2.5 Gallons
11/8- .5 Gallons
Total= 15 Gallons

MW-2
9/12- 4 Gallons
9/22- 18 Gallons
10/5- 30 Gallons
10/14- 60 Gallons
10/27- 34 Gallons
11/8- 40 Gallons
11/18- 40 Gallons
Total= 226 Gallons

MW-6
10/5- <1 Gallon

MW-7
9/26- 1.2 Gallons
10/5- 2.5 Gallons
10/14- 5 Gallons
11/8- .7 Gallons
11/18- .75 Gallons
Total= 10.15 Gallons

MW-9
10/5- 5.25 Gallons
11/8- 1.5 Gallons
11/18- 1 Gallon
Total= 7.75 Gallons

MW-10
10/5- 4 Gallons
11/8- 3.5 Gallons
11/18- .75 Gallons
Total- 8.25 Gallons

TOTAL RECOVERED THROUGH 11/18/94 = 268.15 Gallons

APPENDIX B

WELL LOG

WELL: MW-1
LOCATION: South of Reg. Unleaded tank, in graveled apron north of Rt.4A
DRILLER: Adams Engineering
HYDROGEOLOGIST: John Malter

DATE: September 12, 1994

Soils Description

Depth	Description	HNU (ppm)
0-1'	Coarse sand, and some medium gravel	No reading
1-8'	Augered, no sample	No reading
8-9'	Brown silt, some gravel, weathered hydrocarbon odor	No reading
9-9.5'	Gray silt, fragments of red brick, hydrocarbon odor	No reading
9.5-9.8'	Cinders and some gray silt, hydrocarbon odor	No reading
9.8-10'	Some brown sand, gray silt and fine gravel, hydrocarbon odor, product present	No reading
10-10.5'	Coarse gray sand and fine gravel, water table (product table) at 10.5'	No reading
10.5-11.5'	Some coarse gray sand and gray silt, and fine gravel, saturated	No reading
11.5-17'	No sample	No reading

Overall profile: 0 to 1 foot was a coarse sand and medium gravel. 1 to 8 feet appeared to be fill for road construction. 8 to 9.8 feet brown and gray silt with brick and cinders, some gravel, hydrocarbon odor became evident. 9.8 to 10.5 feet gray silt with coarse sand and fine gravel with depth, product noted at ~ 10 feet and water table (product table) at ~ 10.5 feet. 10.5 to 11.5 feetcoarse sand and gray silt , fine gravel, saturated. 11.5- 17 feet no recovery.

Well Construction

Bottom of Boring: 17 feet
Well Screen: 5 feet from 7.7 to 12.7 feet, 0.01" slot, 1.5" sch. 40 pvc
Solid Riser: 7.4 feet from .3 to 7.7 feet, 1.5" sch. 40 pvc
Sand Pack: 8.2 feet, 4.5 to 12.7 feet
Bentonite Seal: 3 feet from 1.5 to 4.5 feet, backfill to ~ 6"
Well Box: One, cemented flush at grade

WELL LOG

WELL:	MW-2
LOCATION:	East of Hutchins and White Building, on north edge of driveway
DRILLER:	Adams Engineering
HYDROGEOLOGIST:	John Malter
DATE:	September 12, 1994

Soils Description

Depth	Description	HNU (ppm)
0-1'	No recovery	No reading
1-2'	Brown silt and sand, some gravel	No reading
2-3.8'	Gray silt with sand and gravel	No reading
3.8-5.5'	Augered, no recovery	No reading
5.5-6.5'	Gray silt and gravel	No reading
6.5-8.5'	Gray clay and fine gravel, hydrocarbon odor at depth	No reading
8.5-10.3'	Gray silt/clay and medium gravel to a gray coarse sand and medium gravel, water table at 10.2' with product present	No reading
10.3-15.3'	Poor recovery, some saturated coarse sand and medium gravel	No reading
Overall profile:	0 to 1 foot no recovery. 1 to 3.8 feet silts with sand and gravel. 3.8 to 5.5 feet refusal, augered to 5.5 feet. 5.5 to 8.5 feet gray silt and gravel with hydrocarbon odor detected at ~8.5 feet. 8.5 to 10.3 feet gray silt/clay and medium gravel, and coarse gray sand, getting coarser with depth. Water table (product table) at 10.2 feet. 10.3 to 15.3 feet poor recovery in product saturated coarse sand and medium gravel.	

Well Construction

Bottom of Boring:	15.3 feet
Well Screen:	5 feet from 7.2 to 12.2 feet 0.010' slot, 1.5" sch. 40 pvc
Solid Riser:	6.9 feet from .3 to 7.2 feet, 1.5" sch. 40 pvc
Sand Pack:	7.2 feet, 5 to 12.2 feet
Bentonite Seal:	3.5 feet, 1.5 to 5 feet, backfill to 6"
Well Box:	One, cemented flush at grade

WELL LOG

WELL:	MW-3
LOCATION:	West of Hutchins and White building on north edge of lawn, moved three times during drilling due to subsurface conditions
DRILLER:	Adams Engineering
HYDROGEOLOGIST:	John Malter
DATE:	September 12, 1994

Soils Description

Depth	Description	HNU(ppm)
0-1'	Coarse sand, fine silt	No reading
1-2.5'	Brown sand and gravel	No reading
2.5-5'	No sample, coarse fill	No reading
5-10.8'	Fine brown sand to a coarse gravel with depth	No reading
10.8-12'	No sample, augered to 12'	No reading
12-13.1'	Brown silty sand, some fine gravel, water table at 12 feet, refusal at 13.1 feet	No reading

Overall profile: 0 to 1 foot coarse sand and fine silt. 1 to 2.5 feet brown sand and gravel. Fill from 2.5 to 5 feet. 5 to 10.8 feet fine sand to a coarse gravel with depth. 10.8 to 12 feet no sample. 12-13.1 feet brown silty sand and some fine gravel with water table at 12 feet. Refusal at 13.1 feet.

Well Construction

Bottom of Boring:	13.1 feet
Well Screen:	5 feet from 7 to 12 feet, 0.01" slot, 1.5" sch. 40 pvc
Solid Riser:	6.7 feet from .3 to 7 feet, 1.5" sch. 40 pvc
Sand Pack:	7 feet, 5 to 12 feet
Bentonite Seal:	2 feet, from 3 to 5 feet, backfill to ~ 6"
Well Box:	One, cemented flush at grade

WELL LOG

WELL:	MW-4
LOCATION:	South of Rt. 4A, in corn field, ~ 14 feet east of the beginning of the tree line
DRILLER:	Tri State Drilling and Boring
HYDROGEOLOGIST:	John Malter

DATE: September 21, 1994

Soils Description

Depth	Description	HNU(ppm)
0-2'	Brown silty sand	0
2-4'	Brown silt and clay, minor sand with fine gravel, Water table at 3.5 feet	0
4-6'	Gray medium sand and fine gravel, mottling, saturated	0
6-8'	Brown sand and fine to medium gravel, saturated	0
8-10'	Brown fine to medium sand and gravel, saturated	0
10-12'	Brown fine sand and fine to medium gravel, grading to brown clay at 10.5 to 12 feet, saturated	0

Overall profile: 0-2 feet silty sand to silt and fine gravel from 2 to 4 feet, water table at 3.5 feet. 4 to 10.5 feet fine to medium sand and fine to medium gravel. Brown clay from 10.5 to 12 feet.

Well Construction

Bottom of Boring:	12.2 feet
Well Screen:	10 feet from 2.2 to 12.2 feet, 0.02" slot, 2" sch. 40 pvc
Solid Riser:	2 feet from .2 to 2.2 feet, 2" sch. 40 pvc
Sand Pack:	10.4 feet, 1.8 to 12.2 feet
Bentonite Seal:	.6 feet from 1.2 to 1.8 feet, sand from .5 to 1.2 feet
Well Box:	One, cemented flush at grade

WELL LOG

WELL: MW-5
LOCATION: West of Hutchins and White building, four feet west of MW-3
DRILLER: Tri State Drilling and Boring
HYDROGEOLOGIST: John Malter

DATE: September 21, 1994

Soils Description

Depth	Description	HNU(ppm)
0-2'	Brown fine sand and fine gravel	0
2-4'	Brown fine sand to gray brown silty sand and fine gravel	0
4-6'	Gray medium sand and fine to medium gravel with some coarse gravel	6
6-8'	Brown fine sand and fine gravel, fragments of slate	0
8-10'	Medium to coarse gravel, poor recovery refusal at 10 feet, moved north 10 feet	0
10-12'	Brown silt and fine gravel, to gray black silt and fine gravel, some cinders to gray coarse sand , some medium gravel	0
12-14'	Fine to medium gravel, some sand to silty clay with mottling, water table at 13.2 feet	0
14-16'	Gray fine sandy silt to gray sand and medium gravel	0
16-18'	Fine to medium gravel with some gray sand and silt	0

Overall profile: 0 to 4 feet fine sand and fine gravel. 4 to 10 feet, poorly sorted material, probably fill including fine to coarse gravel, sand and slate, HNU reading of ~ 6ppm at 4 to 6 feet. Refusal at 10 feet. Moved 10 north and continued drilling. 10 to 12' silt and fine gravel to coarse sand and medium gravel with cinders. 12 to 14 feet fine to medium gravel,some sand to silty clay and water table at 13.2 feet. 14 to 18 feet sandy silt and medium gravel grading to fine to medium gravel and some sand and silt

Well Construction

Bottom of Boring: 18.5 feet
Well Screen: 10 feet from 8.3 to 18.3 feet, 0.01" slot, 2" sch. 40 pvc
Solid Riser: 8 feet from .3 to 8.3 feet , 2" sch. 40 pvc
Sand Pack: 11.8 feet, 6.5 to 18.3 feet
Bentonite Seal: 2 feet from 4.5 to 6.5 feet, backfill from 1 to 4.5 feet and sand from 0.5 to 1 foot
Well Box: One, cemented flush at grade

WELL LOG

WELL:	MW-6
LOCATION:	10.5 feet south of 30,000 gallon #2 fuel oil tank, 5 feet west of tank end
DRILLER:	Tri State Drilling and Boring
HYDROGEOLOGIST:	John Malter

DATE: September 21, 1994

Soils Description

Depth	Description	HNU(ppm)
0-2'	Brown silty sand to fine sand and fine gravel	1
2-4'	Brown to gray sand, moist, hydrocarbon odor	60
4-6'	Gray sand and gray clayey silt, hydrocarbon odor	60
6-8'	Gray sand and silt, hydrocarbon odor, water table at 7.6 feet	120
8-10'	Fine gravel, some silt and sand	80
10-12'	Gray medium sand and fine to medium gravel	7
12-14'	Gray coarse sand and fine gravel to gray silty clay	<1

Overall profile: 0 to 2 feet silty sand to fine sand and fine gravel. 2 to 6 feet sand to clayey silt with petroleum odor. 6 to 8 feet silt and sand with water table at 7.6 feet. 8 to 12 feet sand and gravel coarser sorting with depth. 12 to 14 feet coarse sand and fine gravel grading to a gray silty clay, (possible impeding layer).

Well Construction

Bottom of Boring:	14 feet
Well Screen:	10 feet from 3 to 13 feet, 0.01" slot, 2 " sch. 40 pvc
Solid Riser:	3 feet from ground surface to 3 feet, 2" sch. 40 pvc
Sand Pack:	10.5 feet, 2.5 to 13 feet
Bentonite Seal:	1 foot from 1.5 to 2.5 feet, sand from .5 to 1.5 feet
Well Box:	One, cemented flush at grade

WELL LOG

WELL:	MW-7
LOCATION:	East of berm, west of Castleton River on north edge of property,
DRILLER:	Tri State Drilling and Boring
HYDROGEOLOGIST:	John Malter
DATE:	September 21, 1994

Soils Description

Depth	Description	HNU(ppm)
0-2'	Brown, medium sand and fine gravel	0
2-4'	Brown, medium sand and fine gravel	1
4-6'	Gray black silty sand and fine gravel to black silt, Water table at 5.5 feet, hydrocarbon odor	120
6-8'	Fine gravel, to medium gray sand and fine gravel, hydrocarbon odor	120
8-10'	Gray medium sand and fine gravel to medium gravel with slate	4
10-12'	Fine gravel to gray green clayey silt	<1

Overall profile: 0 to 4 feet medium sand and fine gravel. 4 to 6 feet silty sand and fine gravel water table at 5.5 feet. 6 to 10 feet fine gravel and medium sand. 10- 12 feet fine gravel grading to clayey silt at depth

Well Construction

Bottom of Boring:	12 feet
Well Screen:	10 feet from 2 to 12 feet, 0.01" slot, 2" sch. 40 pvc
Solid Riser:	2 feet from ground surface to 2 feet, 2" sch. 40 pvc
Sand Pack:	10.2 feet, 1.8 to 12 feet
Bentonite Seal:	.6 feet from 1.2 to 1.8 feet, sand from 0.5 to 1.2 feet
Well Box:	One, cemented flush at grade

WELL LOG

WELL: MW-8
LOCATION: Nine feet west of Castleton River bank, on eastern border of property
DRILLER: Tri State Drilling and Boring
HYDROGEOLOGIST: John Malter

DATE: September 21, 1994

Soils Description

Depth	Description	HNU(ppm)
0-2'	Brown medium sand and fine gravel	0
2-3'	Brown medium sand and coarse gravel and cobbles	0
3-5'	Coarse gravel to gray brown sandy silt	0
5-7'	Brown sandy silt and fine gravel to wet medium to coarse sand some silt, water table at 6.2 feet	0
7-9'	Brown coarse sand and fine to medium gravel	0
9-11'	Brown coarse sand and fine to medium gravel	0
11-12'	Brown, fine to medium sand and fine gravel	0

Overall profile: 0 to 2 feet medium sand and fine gravel. 2 to 3 feet medium sand and coarse gravel and cobbles. 3 to 5 feet coarse gravel to sandy silt. 5 to 7 feet sandy silt and fine gravel to medium to coarse sand and some silt with water table at 6.2 feet. 7 to 11 feet coarse sand and fine to medium gravel. 11 to 12 feet grading to a fine to medium sand and fine gravel.

Well Construction

Bottom of Boring: 12 feet
Well Screen: 10 feet from 2 feet to 12 feet, 0.01' slot, 2" sch. 40 pvc
Solid Riser: 2 feet from ground surface to 2 feet, 2" sch. 40 pvc
Sand Pack: 10.2 feet, 1.8 to 12 feet
Bentonite Seal: .6 feet from 1.2 to 1.8 feet, sand from 0.5 to 1.2 feet
Well Box: One, cemented flush at grade

WELL LOG

WELL: MW-11
LOCATION: North of Delaware and Hudson Railroad tracks, 129 feet west of bridge abutment, hand dug well
DRILLER: John Malter
HYDROGEOLOGIST: John Malter

DATE: October 19, 1994

Soils Description

Depth	Description	HNU(ppm)
0-1'	Gray silt with fine to coarse gravel	0
1-2	Gray silt, fine gravel some damp coarse sand, minor mottling	0
2-3'	Medium to coarse gravel, water table at 2.3 feet, black stain at 2.4 feet, gray silt and some fine sand at depth	1
3-4'	Gray fine to medium sand, some medium gravel, hydrocarbon odor	8
4-4.1'	Medium to coarse gravel, some medium to coarse sand	4

Overall profile: 0 to 1 foot silt and poorly sorted gravel. ! to 2 feet fine gravel and coarse sand. 2 to 3 feet medium to coarse gravel with water table at 2.3 feet and black stain on gravel at 2.4 feet, silt and some fine sand between 2.5 and 3 feet. 3 to 4 feet fine to medium sand with some medium gravel, hydrocarbon odor. 4 to 4.1 medium to coarse gravel some medium to coarse sand.

Well Construction

Bottom of Boring: 4.1 feet
Well Screen: 3.44 feet from .14 to 3.58 feet, 0.01" slot, 2" sch. 40 pvc
Solid Riser: 1.34 feet from 1.20 feet above grade to .14 feet below grade, 2" sch. 40 pvc
Sand Pack: 3.51 feet, .07 to 3.58 feet
Bentonite Seal: .07 feet from 0 to .07 feet

ADAMS ENGINEERING
Gerard Adams
RD #1, Box #3700, Underhill, VT 05489
899-4945

September 18, 1994

Mr. John Malter
Malter Consulting

Logs for Hutchins & White/Castleton conducted under your direction:

9/12/94 MW #1 South of transport unloading connections.

SOILS WELL

0-1' Manway.
-.3' Top of well 10' X 1.5" solid riser.
0>-1' Sampler (polyethylene lined 5' X 2.375" ID sampler vibrated to depth) refusal, rocks.
-1.5' Top bentonite slurry.
-1>5' Augered with 4" solid auger, sandy gravel.
-4.5' Bottom bentonite, top sand pack placed in open borehole, .49 mm pool filter sand, typ.
-5>10.0' Sampler, Sandy gravel // (over) cinders//blue gray fine sandy silt.
-7.7' Top well screen 5' X 1.5" X .010" Hi Flo, typ.
-10>15.2' Gray damp silty sandy gravel.
-12.7' Bottom of well screen.
-15.2>20.2" Poor recovery, Saturated oily sand & gravel, WL -10.5'.
Developed with peristaltic pump, clear, all oil.

MW #2 Between building & loading rack.

0-1' Manway.
-.3' Top of well 10' X 1.5" solid riser.
-1>4.8' Refusal rocks, silty sandy gravel.
-1.5' Top bentonite slurry.
-5.0' Bottom bentonite, top sand pack placed in open borehole.
-4.8>5.5' Tried smaller sampler & point no penetration, augered.
-5.5>10.3' Damp gray gravelly silt.
-7.2' Top well screen 5' X 1.5" X .010" Hi Flo, typ.
-10.3>15.3' Poor recovery, spoil//saturated silty gravel, oily, WL -10.2'
-12.2' Bottom of well screen.
Developed with peristaltic pump, clear, all oil.

MW #3 West of building. 3 Tries.

0-1' Manway.
-.3' Top of well 10' X 1.5" solid riser.
-1>5' Poor recovery rock in tip, brown gravelly silt sand.
-3' Top bentonite slurry.
-5' Bottom bentonite, top sand pack placed in open borehole,
-7*' Top well screen 5' X 1.5" X .010" Hi Flo, typ.
-10>10.8' Sampler, refusal, rubble
-12*' Bottom of well screen.
-8>13.1' Sample, coal//gray saturated silty fine sand.

Not developed completely, muddy, too little water, no oil.
* Not logged.

G. Adams

SOIL PROBE LOG

MW # 4
Hutchins & White
Castleton, VT

TRI STATE
DRILLING & BORING, INC.
RFD #2, Box 113 West Burke, VT 05871
(802) 467-3123

		SAMPLER Continuous
TYPE	HSA	SS
SIZE	2"	
HAMMER	140#	
FALL	30"	

SOIL
Saturated
Wet
Moist
Damp
Slightly Damp

DATE STARTED: 09/21/94 DATE COMPLETED: 09/21/94

FOOTAGE DEPTH	BLOW COUNTS 6 12 18 24	REC	DRILLER'S NOTES & COMMENTS
0-2'	1 1 2 2	0.9'	0-2' Brown damp silt, little fine to coarse sand.
2-4'	2 4 6 8	0.5'	2-4' Brown damp silt, little clay and fine to coarse sand, fine gravel.
4-6'	4 5 6 7	0.7'	4-10' Brown wet fine to coarse sand, fine gravel, same.
6-8'	8 4 1 3	0.8'	
8-10'	9 7 4 3	0.3'	
10-12'	3 2 2 4	0.6'	10-10.5' Brown wet fine to coarse sand.
			10.5-12' Brown wet clay.
			Bottom 12.0'.
			Screen 12.2' to 2.2' below GS.
			Riser 2.2' to GS.
			Sand 12.2' to 1.8' below GS.
			Hole plug 1.8' to 1.2' below GS.
			Sand 1.2' to 0.5' below GS.
			Sakrete 0.5' to GS.

Project: Hutchins & White
Job Location: Castleton, VT
Engineer: Malter Consulting, Inc.
Waterbury, VT
Inspector: John Malter

Driller: Ray Gilfillan
Helper: Sean Hogan
Materials: 10' screen, 2' riser, 1 cap, 1 locking plug, 3 sand, 1/2 hole plug, 1 road box.

SOIL PROBE LOG

MW # 5
Hutchins & White
Castleton, VT

TRI STATE
DRILLING & BORING, INC.
RFD #2, Box 113 West Burke, VT 05871
(802) 467-3123

		SAMPLER Continuous
TYPE	HSA	SS
SIZE	2"	
HAMMER	140#	
FALL	30"	

SOIL
Saturated
Wet
Moist
Damp
Slightly Damp

DATE STARTED: 09/21/94 DATE COMPLETED: 09/21/94

FOOTAGE DEPTH	BLOW COUNTS (6 12 18 24)	REC	DRILLER'S NOTES & COMMENTS
0-2'	3 4 2 2	0.5'	0-0.5' Brown damp silty fine to coarse sand, fine gravel.
			0.5-3' Brown dry fine to coarse sand. fine to coarse sand, fine gravel.
2-4'	1 4 14 12	0.6'	3-10' Brown dry fine to coarse sand, fine to coarse gravel.
4-6'	4 6 9 19	0.5'	Same.
6-8'	18 6 5 6	0.5'	Same.
8-10'	16 18 12 8	0.2'	
			Auger refusal at 10', moved 10' North.
10-12'	10 6 15 7	1.0'	10-12.3' Brown damp silty fine to coarse sand, fine to coarse gravel.
12-14'	3 1 2 3	1.2'	12.3-14.6' Gray moist silty clay.
14-16'	2 4 7 10	1.6'	14.6-18.5' Gray wet fine to coarse sand, fine gravel.
16-18'	8 13 14 18	1.5'	
			Bottom 18.5'.

Screen 18.3' to 8.3' below GS. Riser 8.3' to GS. Sand 18.3' to 6.5' below GS. Hole plug 6.5' to 4.5' below GS. Backfill 4.5' to 1' below GS. Sand 1' to 0.5' below GS. Sakrete 0.5' to GS.

Project: Hutchins & White
Job Location: Castleton, VT
Engineer: Malter Consulting, Inc. Waterbury, VT
Inspector: John Malter

Driller: Ray Gilfillan
Helper: Sean Hogan
Materials: 10' screen, 8' riser, 1 cap, 1 locking plug, 3 sand, 1 hole plug, 1 road box.

SOIL PROBE LOG

TRI STATE
DRILLING & BORING, INC.
RFD #2, Box 113 West Burke, VT 05871
(802) 467-3123

		SAMPLER Continuous
TYPE	HSA	SS
SIZE	2"	
HAMMER	140#	
FALL	30"	

SOIL
Saturated
Wet
Moist
Damp
Slightly Damp

DATE STARTED: 09/21/94 DATE COMPLETED: 09/21/94

FOOTAGE DEPTH	BLOW COUNTS (6 12 18 24)	REC	DRILLER'S NOTES & COMMENTS
0-2'	2 6 8 4	1.0'	0-2' Brown damp silty fine coarse sand, fine gravel.
2-4'	2 1 2 3	1.0'	2-4' Gray moist silty fine to coarse sand.
4-6'	2 5 1 2	1.1'	4-6' Gray moist silt, some fine to coarse sand, trace of clay.
6-8'	1 1 1 2	1.5'	6-8' Gray moist silty clay layer of fine sand.
8-10'	3 2 3 5	0.7'	8-12' Gray wet silty fine to coarse sand, fine gravel.
10-12'	6 7 7 6	1.3'	
12-14'	1 3 3 4	1.3'	12-14' Gray wet silty clay.

Bottom 14.0'.

Screen 13' to 3' below GS.
Riser 3' to GS.
Sand 13' to 2.5' below GS.
Hole plug 2.5' to 1.5' below GS.
Sand 1.5' to 0.5' below GS.
Sakrete 0.5' to GS.

Project: Hutchins & White
Job Location: Castleton, VT
Engineer: Malter Consulting, Inc.
Waterbury, VT
Inspector: John Malter

Driller: Ray Gilfillan
Helper: Sean Hogan
Materials: 10' screen, 3' riser, 1 cap, 1 locking plug, 3 sand, 1/2 hole plug, 1 road box.

SOIL PROBE LOG

MW # 7
Hutchins & White
Castleton, VT

TRI STATE
DRILLING & BORING, INC.
RFD #2, Box 113 West Burke, VT 05871
(802) 467-3123

		SAMPLER Continuous
TYPE	HSA	SS
SIZE	2"	
HAMMER	140#	
FALL	30"	

SOIL
Saturated
Wet
Moist
Damp
Slightly Damp

DATE STARTED: 09/21/94 DATE COMPLETED: 09/21/94

FOOTAGE DEPTH	BLOW COUNTS (6 12 18 24)	REC	DRILLER'S NOTES & COMMENTS
0-2'	2 | 8 | 8	6 | 0.9'	0-4' Brown damp fine to coarse sand, fine gravel.
2-4'	1 | 3 | 6	4 | 0.5'	
4-6'	4 | 7 | 13	15 | 1.0'	4-6' Black damp silt.
6-8'	11 | 14 | 11	11 | 1.3'	6-10' Gray wet fine to coarse sand, fine gravel.
8-8.8'	21 | 75	| 0.8'	
10-12'	1 | 2 | 2	4 | 1.3'	10-12' Gray wet silty clay.
			Bottom 12.0'.

Screen 12' to 2' below GS.
Riser 2' to GS.
Sand 12' to 1.8' below GS.
Hole plug 1.8' to 1.2' below GS.
Sand 1.2' to 0.5' below GS.
Sakrete 0.5' to GS.

Project: Hutchins & White
Job Location: Castleton, VT
Engineer: Malter Consulting, Inc.
Waterbury, VT
Inspector: John Malter

Driller: Ray Gilfillan
Helper: Sean Hogan
Materials: 10' screen, 2' riser, 1 cap, 1 locking plug, 3 sand, 1/4 hole plug, 1 road box.

SOIL PROBE LOG

MW # 8
Hutchins & White
Castleton, VT

TRI STATE
DRILLING & BORING, INC.
RFD #2, Box 113 West Burke, VT 05871
(802) 467-3123

		SAMPLER Continuous
TYPE	HSA	SS
SIZE	2"	
HAMMER	140#	
FALL	30"	

SOIL
Saturated
Wet
Moist
Damp
Slightly Damp

DATE STARTED: 09/21/94 DATE COMPLETED: 09/21/94

FOOTAGE DEPTH	BLOW COUNTS 6 12 18 24	REC	DRILLER'S NOTES & COMMENTS
0-2'	3 5 7 38	0.4'	0-3' Brown dry fine to coarse sand, fine to coarse gravel, cobbles.
2-3'	58 21	0.3'	
3-5'	9 4 4 3	0.9'	3-5' Brown moist silt, little fine to coarse sand.
5-7'	2 2 9 13	0.8'	5-6' Brown moist fine to coarse sand, fine gravel.
7-9'	11 11 10 10	0.9'	6-13' Brown wet fine to coarse sand, fine gravel.
9-11'	15 15 17 17	1.0'	
11-13'	8 8 5 3	0.9'	Bottom 13.0'.

Screen 12' to 2' below GS.
Riser 2' to GS.
Sand 12' to 1.8' below GS.
Hole plug 1.8' to 1.2' below GS.
Sand 1.2' to 0.5' below GS.
Sakrete 0.5' to GS.

Project: Hutchins & White
Job Location: Castleton, VT
Engineer: Malter Consulting, Inc.
Waterbury, VT
Inspector: John Malter

Driller: Ray Gilfillan
Helper: Sean Hogan
Materials: 10' screen, 2' riser, 1 cap, 1 locking plug, 3 sand, 1/4 hole plug, 1 road box.

APPENDIX C

LABORATORY REPORT

CLIENT: Malter Consulting
ADDRESS: Thatcher Brook Road
Waterbury Center, VT

ATTENTION: John Malter
MATRIX: Groundwater

LABORATORY NO: 4-2501
PROJECT NO: 70321
DATE OF SAMPLE: 9/26+27/94
DATE OF RECEIPT: 9/27/94
DATE OF ANALYSIS: 10/4-7/94
DATE OF REPORT: 10/14/94
DATE REVISED: 10/20/94

SCITEST LABORATORY SERVICES

All results in micrograms per liter (ppb)

PARAMETER	MW-4	MW-5	MW-8	PQL
Dichlorodifluoromethane	BPQL	BPQL	BPQL	1.0
Chloromethane	BPQL	BPQL	BPQL	1.0
Vinyl Chloride	BPQL	BPQL	BPQL	1.0
Bromomethane	BPQL	BPQL	BPQL	1.0
Chloroethane	BPQL	BPQL	BPQL	1.0
Trichlorofluoromethane	BPQL	BPQL	BPQL	1.0
1,1-Dichloroethylene	BPQL	BPQL	BPQL	1.0
Acetone	BPQL	BPQL	BPQL	5.0
Methylene Chloride *	1.2	1.2	1.3	1.0
Methyl tertiary Butyl Ether	BPQL	BPQL	BPQL	1.0
t-1,2-Dichloroethylene	BPQL	BPQL	BPQL	1.0
1,1-Dichloroethane	BPQL	BPQL	BPQL	1.0
c-1-2,-Dichloroethylene	BPQL	BPQL	BPQL	1.0
2, 2-Dichloropropane	BPQL	BPQL	BPQL	1.0
Methyl Ethyl Ketone (2-But)	BPQL	BPQL	BPQL	5.0
Bromochloromethane	BPQL	BPQL	BPQL	1.0
Chloroform	BPQL	BPQL	BPQL	1.0
1,1,1-Trichloroethane	BPQL	BPQL	BPQL	1.0
Carbon Tetrachloride	BPQL	BPQL	BPQL	1.0
1,1-Dichloropropene	BPQL	BPQL	BPQL	1.0
Benzene	BPQL	BPQL	**87**	1.0
1,2-Dichloroethane	BPQL	BPQL	**2.6**	1.0
Trichloroethylene	BPQL	BPQL	BPQL	1.0
1,2-Dichloropropane	BPQL	BPQL	BPQL	1.0
Dibromomethane	BPQL	BPQL	BPQL	1.0
Bromodichloromethane	BPQL	BPQL	BPQL	1.0
cis-1,3-Dichloropropene	BPQL	BPQL	BPQL	1.0
Methyl Isobutyl Ketone (4M2P)	BPQL	BPQL	BPQL	5.0
Toluene	**1.1**	**1.2**	BPQL	1.0
trans-1,3-Dichloropropene	BPQL	BPQL	BPQL	1.0
1,1,2-Trichloroethane	BPQL	BPQL	BPQL	1.0
Tetrachloroethylene	BPQL	BPQL	BPQL	1.0

PARAMETER	MW-4	MW-5	MW-8	PQL
1,3-Dichloropropane	BPQL	BPQL	BPQL	1.0
2-Hexanone	BPQL	BPQL	BPQL	5.0
Dibromochloromethane	BPQL	BPQL	BPQL	1.0
1,2-Dibromomethane (EDB)	BPQL	BPQL	BPQL	1.0
Chlorobenzene	BPQL	BPQL	BPQL	1.0
1,1,1,2-Tetrachloroethane	BPQL	BPQL	BPQL	1.0
Ethylbenzene	BPQL	BPQL	BPQL	1.0
m & p-Xylene	BPQL	BPQL	BPQL	2.0
o-Xylene	BPQL	BPQL	BPQL	2.0
Styrene	BPQL	BPQL	BPQL	1.0
Bromoform	BPQL	BPQL	BPQL	1.0
Isopropylbenzene	BPQL	BPQL	**1.6**	1.0
Bromobenzene	BPQL	BPQL	BPQL	1.0
1,2,3-Trichloropropane	BPQL	BPQL	BPQL	1.0
1,1,2,2-Tetrachloroethane	BPQL	BPQL	BPQL	1.0
n-Propylbenzene	BPQL	BPQL	BPQL	1.0
2-Chlorotoluene	BPQL	BPQL	BPQL	1.0
4-Chlorotoluene	BPQL	BPQL	BPQL	1.0
1,3,5-Trimethylbenzene	BPQL	BPQL	BPQL	1.0
tert-Butylbenzene	BPQL	BPQL	BPQL	1.0
1,2,4-Trimethylbenzene	BPQL	BPQL	BPQL	1.0
sec-Butylbenzene	BPQL	BPQL	BPQL	1.0
1,3-Dichlorobenzene	BPQL	BPQL	BPQL	1.0
1,4-Dichlorobenzene	BPQL	BPQL	BPQL	1.0
p-Isopropyltoluene	BPQL	BPQL	BPQL	1.0
1,2-Dichlorobenzene	BPQL	BPQL	BPQL	1.0
n-Butylbenzene	BPQL	BPQL	BPQL	1.0
1,2-Dibr-3-clpropane (DBCP)	BPQL	BPQL	BPQL	2.0
1,2,4-Trichlorobenzene	BPQL	BPQL	BPQL	1.0
Hexachlorobutadiene	BPQL	BPQL	BPQL	1.0
Naphthalene	BPQL	BPQL	BPQL	1.0
1,2,3-Trichlorobenzene	BPQL	BPQL	BPQL	1.0

EPA Method 8260, SW-846, 3rd ed., Rev. 1, July, 1992.
BPQL = Below Practical Quantitation Limit (PQL).
* Methylene Chloride was also found in the laboratory blank.

LABORATORY REPORT

CLIENT: Malter Consulting
ADDRESS: Thatcher Brook Road
Waterbury Center, VT
SITE:
ATTENTION: John Malter
MATRIX: Groundwater

LABORATORY NO: 4-2501
PROJECT NO: 70321
DATE OF SAMPLE: 9/26+27/94
DATE OF RECEIPT: 9/27/94
DATE OF ANALYSIS: 10/4-10/94
DATE OF REPORT: 10/14/94
DATE OF REVISION: 10/20/94

SCITEST LABORATORY SERVICES

All results in micrograms per liter (ppb)

PARAMETER	MW-6	MW-7	SW	PQL
Dichlorodifluoromethane	BPQL	BPQL	BPQL	100
Chloromethane	BPQL	BPQL	BPQL	100
Vinyl Chloride	BPQL	BPQL	BPQL	100
Bromomethane	BPQL	BPQL	BPQL	100
Chloroethane	BPQL	BPQL	BPQL	100
Trichlorofluoromethane	BPQL	BPQL	BPQL	100
1,1-Dichloroethylene	BPQL	BPQL	BPQL	100
Acetone	BPQL	BPQL	BPQL	500
Methylene Chloride	BPQL	BPQL	BPQL	100
Methyl tertiary Butyl Ether	**185**	**230**	BPQL	100
t-1,2-Dichloroethylene	BPQL	BPQL	BPQL	100
1,1-Dichloroethane	BPQL	BPQL	BPQL	100
c-1-2,-Dichloroethylene	BPQL	BPQL	BPQL	100
2, 2-Dichloropropane	BPQL	BPQL	BPQL	100
Methyl Ethyl Ketone (2-But)	BPQL	BPQL	BPQL	500
Bromochloromethane	BPQL	BPQL	BPQL	100
Chloroform	BPQL	BPQL	BPQL	100
1,1,1-Trichloroethane	BPQL	BPQL	BPQL	100
Carbon Tetrachloride	BPQL	BPQL	BPQL	100
1,1-Dichloropropene	BPQL	BPQL	BPQL	100
Benzene	**969**	**2760**	BPQL	100
1,2-Dichloroethane	BPQL	BPQL	BPQL	100
Trichloroethylene	BPQL	BPQL	BPQL	100
1,2-Dichloropropane	BPQL	BPQL	BPQL	100
Dibromomethane	BPQL	BPQL	BPQL	100
Bromodichloromethane	BPQL	BPQL	BPQL	100
cis-1,3-Dichloropropene	BPQL	BPQL	BPQL	100
Methyl Isobutyl Ketone (4M2P)	BPQL	BPQL	BPQL	500
Toluene	BPQL	**972**	BPQL	100
trans-1,3-Dichloropropene	BPQL	BPQL	BPQL	100
1,1,2-Trichloroethane	BPQL	BPQL	BPQL	100
Tetrachloroethylene	BPQL	BPQL	BPQL	100

PARAMETER	MW-6	MW-7	SW	PQL
1,3-Dichloropropane	BPQL	BPQL	BPQL	100
2-Hexanone	BPQL	BPQL	BPQL	500
Dibromochloromethane	BPQL	BPQL	BPQL	100
1,2-Dibromomethane (EDB)	BPQL	BPQL	BPQL	100
Chlorobenzene	BPQL	BPQL	BPQL	100
1,1,1,2-Tetrachloroethane	BPQL	BPQL	BPQL	100
Ethylbenzene	**191**	**864**	BPQL	100
m & p-Xylene	**1150**	**3180**	**197**	200
o-Xylene	BPQL	**1280**	**127**	200
Styrene	BPQL	BPQL	BPQL	100
Bromoform	BPQL	BPQL	BPQL	100
Isopropylbenzene	BPQL	BPQL	BPQL	100
Bromobenzene	BPQL	BPQL	BPQL	100
1,2,3-Trichloropropane	BPQL	BPQL	BPQL	100
1,1,2,2-Tetrachloroethane	BPQL	BPQL	BPQL	100
n-Propylbenzene	BPQL	**162**	BPQL	100
2-Chlorotoluene	BPQL	BPQL	BPQL	100
4-Chlorotoluene	BPQL	BPQL	BPQL	100
1,3,5-Trimethylbenzene	**108**	**359**	**153**	100
tert-Butylbenzene	BPQL	BPQL	BPQL	100
1,2,4-Trimethylbenzene	**389**	**1230**	**514**	100
sec-Butylbenzene	BPQL	BPQL	BPQL	100
1,3-Dichlorobenzene	BPQL	BPQL	BPQL	100
1,4-Dichlorobenzene	BPQL	BPQL	BPQL	100
p-Isopropyltoluene	BPQL	BPQL	BPQL	100
1,2-Dichlorobenzene	BPQL	BPQL	BPQL	100
n-Butylbenzene	BPQL	BPQL	BPQL	100
1,2-Dibr-3-clpropane (DBCP)	BPQL	BPQL	BPQL	200
1,2,4-Trichlorobenzene	BPQL	BPQL	BPQL	100
Hexachlorobutadiene	BPQL	BPQL	BPQL	100
Naphthalene	**129**	**590**	**560**	100
1,2,3-Trichlorobenzene	BPQL	BPQL	BPQL	100

PQL for these samples is higher due to dilution of the sample 1:100.
EPA Method 8260, SW-846, 3rd ed., Rev. 1, July, 1992.
BPQL = Below Practical Quantitation Limit (PQL).

LABORATORY REPORT

CLIENT: Malter Consulting
ADDRESS: Thatcher Brook Road
Waterbury Center, VT
SITE:
ATTENTION: John Malter
MATRIX: Groundwater

LABORATORY NO: 4-2501
PROJECT NO: 70321
DATE OF SAMPLE: 9/26+27/94
DATE OF RECEIPT: 9/27/94
DATE OF ANALYSIS: 10/7/94
DATE OF REPORT: 10/14/94
DATE OF REVISION: 10/25/94

SCITEST LABORATORY SERVICES

All results in micrograms per liter (ppb)

PARAMETER	MW-9	MW-2	MW-10	MW-1
Dichlorodifluoromethane	< 1000	< 500,000	< 500	< 250
Chloromethane	< 1000	< 500,000	< 500	< 250
Vinyl Chloride	< 1000	< 500,000	< 500	< 250
Bromomethane	< 1000	< 500,000	< 500	< 250
Chloroethane	< 1000	< 500,000	< 500	< 250
Trichlorofluoromethane	< 1000	< 500,000	< 500	< 250
1,1-Dichloroethylene	< 1000	< 500,000	< 500	< 250
Acetone	< 5000	< 2,500,000	< 2500	< 1250
Methylene Chloride	< 1000	< 500,000	< 500	< 250
Methyl tertiary Butyl Ether	< 1000	< 500,000	< 500	**1,470**
t-1,2-Dichloroethylene	< 1000	< 500,000	< 500	< 250
1,1-Dichloroethane	< 1000	< 500,000	< 500	< 250
c-1-2,-Dichloroethylene	< 1000	< 500,000	< 500	< 250
2, 2-Dichloropropane	< 1000	< 500,000	< 500	< 250
Methyl Ethyl Ketone (2-But)	< 5000	< 2,500,000	< 2500	< 1250
Bromochloromethane	< 1000	< 500,000	< 500	< 250
Chloroform	< 1000	< 500,000	< 500	< 250
1,1,1-Trichloroethane	< 1000	< 500,000	< 500	< 250
Carbon Tetrachloride	< 1000	< 500,000	< 500	< 250
1,1-Dichloropropene	< 1000	< 500,000	< 500	< 250
Benzene	**2520**	**510,000**	**715**	**1,020**
1,2-Dichloroethane	< 1000	< 500,000	< 500	< 250
Trichloroethylene	< 1000	< 500,000	< 500	< 250
1,2-Dichloropropane	< 1000	< 500,000	< 500	< 250
Dibromomethane	< 1000	< 500,000	< 500	< 250
Bromodichloromethane	< 1000	< 500,000	< 500	< 250
cis-1,3-Dichloropropene	< 1000	< 500,000	< 500	< 250
Methyl Isobutyl Ketone (4M2P)	< 5000	< 2,500,000	< 2500	< 1250
Toluene	< 1000	< 500,000	**1350**	**388**
trans-1,3-Dichloropropene	< 1000	< 500,000	< 500	< 250
1,1,2-Trichloroethane	< 1000	< 500,000	< 500	< 250
Tetrachloroethylene	< 1000	< 500,000	< 500	< 250

PARAMETER	MW-9	MW-2	MW-10	MW-1
1,3-Dichloropropane	< 1000	< 500,000	< 500	< 250
2-Hexanone	< 5000	< 2,500,000	< 2500	< 1250
Dibromochloromethane	< 1000	< 2,500,000	< 2500	< 250
1,2-Dibromomethane (EDB)	< 1000	< 2,500,000	< 2500	< 250
Chlorobenzene	< 1000	< 2,500,000	< 2500	< 250
1,1,1,2-Tetrachloroethane	< 1000	< 2,500,000	< 2500	< 250
Ethylbenzene	**1000**	**1,230,000**	**552**	**435**
m & p-Xylene	**3660**	**4,740,000**	**2270**	**1680**
o-Xylene	**1440**	**1,860,000**	**953**	**833**
Styrene	< 1000	< 500,000	< 500	< 250
Bromoform	< 1000	< 500,000	< 500	< 250
Isopropylbenzene	< 1000	< 500,000	< 500	< 250
Bromobenzene	< 1000	< 500,000	< 500	< 250
1,2,3-Trichloropropane	< 1000	< 500,000	< 500	< 250
1,1,2,2-Tetrachloroethane	< 1000	< 500,000	< 500	< 250
n-Propylbenzene	< 1000	**820,000**	< 500	< 250
2-Chlorotoluene	< 1000	< 500,000	< 500	< 250
4-Chlorotoluene	< 1000	< 500,000	< 500	< 250
1,3,5-Trimethylbenzene	< 1000	**1,870,000**	< 500	**415**
tert-Butylbenzene	< 1000	< 500,000	< 500	< 250
1,2,4-Trimethylbenzene	**1800**	**5,840,000**	**1030**	**1290**
sec-Butylbenzene	< 1000	**520,000**	< 500	< 250
1,3-Dichlorobenzene	< 1000	< 500,000	< 500	< 250
1,4-Dichlorobenzene	< 1000	< 500,000	< 500	< 250
p-Isopropyltoluene	< 1000	**510,000**	< 500	< 250
1,2-Dichlorobenzene	< 1000	< 500,000	< 500	< 250
n-Butylbenzene	< 1000	< 500,000	< 500	< 250
1,2-Dibr-3-clpropane (DBCP)	< 2000	< 1,000,000	< 1000	< 500
1,2,4-Trichlorobenzene	< 1000	< 500,000	< 500	< 250
Hexachlorobutadiene	< 1000	< 500,000	< 500	< 250
Naphthalene	< 1000	**1,120,000**	**794**	**497**
1,2,3-Trichlorobenzene	< 1000	< 500,000	< 500	< 250

EPA Method 8260, SW-846, 3rd ed., Rev. 1, July, 1992.
Practical Quantification Limits (PQL's) are indicated as less than values (<) based upon the dilution used. MW-9 diluted 1:1000, MW-2 diluted 1:500,000 MW-10 diluted 1:500, and MW-1 diluted 1:250. Diluting the sample will change the detection and quantification limits by the same factor.

LABORATORY REPORT

CLIENT: Malter Consulting
ADDRESS: Thatcher Brook Road
Waterbury Center, VT
SITE:
ATTENTION: John Malter
MATRIX: Groundwater

LABORATORY NO: 4-2501
PROJECT NO: 70321
DATE OF SAMPLE: 9/26+27/94
DATE OF RECEIPT: 9/27/94
DATE OF ANALYSIS: 10/7/94
DATE OF REPORT: 10/14/94
DATE OF REVISION: 10/20/94

SCITEST LABORATORY SERVICES

All results in micrograms per liter (ppb)

PARAMETER	Trip Blank	Field Blank	PQL
Dichlorodifluoromethane	BPQL	BPQL	1.0
Chloromethane	BPQL	BPQL	1.0
Vinyl Chloride	BPQL	BPQL	1.0
Bromomethane	BPQL	BPQL	1.0
Chloroethane	BPQL	BPQL	1.0
Trichlorofluoromethane	BPQL	BPQL	1.0
1,1-Dichloroethylene	BPQL	BPQL	1.0
Acetone	BPQL	BPQL	5.0
Methylene Chloride	1.7	2.0	1.0
Methyl tertiary Butyl Ether	BPQL	BPQL	1.0
t-1,2-Dichloroethylene	BPQL	BPQL	1.0
1,1-Dichloroethane	BPQL	BPQL	1.0
c-1-2,-Dichloroethylene	BPQL	BPQL	1.0
2, 2-Dichloropropane	BPQL	BPQL	1.0
Methyl Ethyl Ketone (2-But)	BPQL	BPQL	5.0
Bromochloromethane	BPQL	BPQL	1.0
Chloroform	BPQL	BPQL	1.0
1,1,1-Trichloroethane	BPQL	BPQL	1.0
Carbon Tetrachloride	BPQL	BPQL	1.0
1,1-Dichloropropene	BPQL	BPQL	1.0
Benzene	BPQL	BPQL	1.0
1,2-Dichloroethane	BPQL	BPQL	1.0
Trichloroethylene	BPQL	BPQL	1.0
1,2-Dichloropropane	BPQL	BPQL	1.0
Dibromomethane	BPQL	BPQL	1.0
Bromodichloromethane	BPQL	BPQL	1.0
cis-1,3-Dichloropropene	BPQL	BPQL	1.0
Methyl Isobutyl Ketone (4M2P)	BPQL	BPQL	5.0
Toluene	BPQL	BPQL	1.0
trans-1,3-Dichloropropene	BPQL	BPQL	1.0
1,1,2-Trichloroethane	BPQL	BPQL	1.0
Tetrachloroethylene	BPQL	BPQL	1.0

PARAMETER	Trip Blank	Field Blank	PQL
1,3-Dichloropropane	BPQL	BPQL	1.0
2-Hexanone	BPQL	BPQL	5.0
Dibromochloromethane	BPQL	BPQL	1.0
1,2-Dibromomethane (EDB)	BPQL	BPQL	1.0
Chlorobenzene	BPQL	BPQL	1.0
1,1,1,2-Tetrachloroethane	BPQL	BPQL	1.0
Ethylbenzene	BPQL	BPQL	1.0
m & p-Xylene	BPQL	BPQL	2.0
o-Xylene	BPQL	BPQL	2.0
Styrene	BPQL	BPQL	1.0
Bromoform	BPQL	BPQL	1.0
Isopropylbenzene	BPQL	BPQL	1.0
Bromobenzene	BPQL	BPQL	1.0
1,2,3-Trichloropropane	BPQL	BPQL	1.0
1,1,2,2-Tetrachloroethane	BPQL	BPQL	1.0
n-Propylbenzene	BPQL	BPQL	1.0
2-Chlorotoluene	BPQL	BPQL	1.0
4-Chlorotoluene	BPQL	BPQL	1.0
1,3,5-Trimethylbenzene	BPQL	BPQL	1.0
tert-Butylbenzene	BPQL	BPQL	1.0
1,2,4-Trimethylbenzene	BPQL	BPQL	1.0
sec-Butylbenzene	BPQL	BPQL	1.0
1,3-Dichlorobenzene	BPQL	BPQL	1.0
1,4-Dichlorobenzene	BPQL	BPQL	1.0
p-Isopropyltoluene	BPQL	BPQL	1.0
1,2-Dichlorobenzene	BPQL	BPQL	1.0
n-Butylbenzene	BPQL	BPQL	1.0
1,2-Dibr-3-clpropane (DBCP)	BPQL	BPQL	2.0
1,2,4-Trichlorobenzene	BPQL	BPQL	1.0
Hexachlorobutadiene	BPQL	BPQL	1.0
Naphthalene	BPQL	BPQL	1.0
1,2,3-Trichlorobenzene	BPQL	BPQL	1.0

EPA Method 8260, SW-846, 3rd ed., Rev. 1, July, 1992.
BPQL = Below Practical Quantitation Limit (PQL).

SCITEST
LABORATORY SERVICES

P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-6313

LABORATORY REPORT

CLIENT: Malter Consulting
ADDRESS: Thatcher Brook Road
Waterbury Center, VT

ATTENTION: John Malter

LABORATORY NO: 4-2501
PROJECT NO: 70321
DATE OF SAMPLE: 9/26+27/94
DATE OF RECEIPT: 9/27/94
DATE OF REPORT: 10/14/94
DATE REVISED: 10/20/94

RESULTS

(Results expressed in milligrams per liter(mg/l)(ppm))

Petroleum Hydrocarbons (TPH) Fuel Scan

	SAMPLE	floating free product	VOLATILES--8015 see note	EXTRACTABLES -- 418.1 Volatiles and Semivolatiles
1	MW-1	present	55	1447
2	MW-2	100%	477,000	1,000,000
3	MW-4		< 0.15	< 1
4	MW-5		< 0.15	< 1
5	MW-6		8.2	5.3
6	MW-7	present	37	1513
7	MW-8		< 0.15	< 1
8	MW-9	present	86	793
9	MW-10	present	63	2278
10	SW		16	3826
11	Lab Blank		< 0.15	< 1
12	Trip Blank		< 0.15	

EPA method 8015 modified, SW-846, 3rd Edition, July, 1992.
NOTE: 8015 results were quantified as fresh gasoline however the volatile portions of these following fuels could also yield this response:
Weathered Gasoline
Kerosene
Diesel Fuel
Fuel Oils

Respectfully Submitted,
SCITEST, INC.

Roderick J. Lamothe
Laboratory Director

LABORATORY REPORT

CLIENT:	Malter Consulting	LABORATORY NO:	4-2501
ADDRESS:	Thatcher Brook Road	PROJECT NO:	70321
	Waterbury Center, VT 05677	DATE OF SAMPLE:	9/26+27/94
		DATE OF RECEIPT:	9/27/94
		DATE OF ANALYSIS:	10/17/94
ATTENTION:	John Malter	DATE OF REPORT:	10/20/94

RESULTS

(Results expressed in milligrams per liter (mg/L)(ppm))

Total Petroleum Hydrocarbons (TPH) SCAN	MW-2	MW-9
The best fuel pattern match was that of Kerosene for both samples. The TPH values are quantified as Kerosene. Copies of the chromatographs were provide 10/19/94.	67 %	63 %

EPA method 8100 modified, SW-846, 3rd Edition, July, 1992.

SCITEST
LABORATORY SERVICES

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LABORATORY SERVICES

P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-6313

LABORATORY REPORT

CLIENT: Malter Consulting
ADDRESS: Box 176
Waterbury, Vt. 05676

SITE: Hutchins & White, Castleton
ATTENTION: John Malter
MATRIX: Soil

LABORATORY NO: 4-2472
PROJECT NO: 89721

DATE OF SAMPLE: 9/22/94
DATE OF RECEIPT: 9/22/94
DATE OF REPORT: 9/27/94

SOIL RESULTS

Parameter	Method	Analysis Date\Time	Sample ID	Result	Units
Total Petroleum Hydrocarbons	EPA 418.1	9/23/94	MW 4	< 25	mg/kg dry wt.
Total Petroleum Hydrocarbons	EPA 418.1	9/23/94	MW 5	425	mg/kg dry wt.
Total Petroleum Hydrocarbons	EPA 418.1	9/23/94	MW 6	550	mg/kg dry wt.
Total Petroleum Hydrocarbons	EPA 418.1	9/23/94	MW 7	.3000	mg/kg dry wt.
Total Petroleum Hydrocarbons	EPA 418.1	9/23/94	MW 8	< 25	mg/kg dry wt.

Respectfully submitted,

SCITEST, INC.

Joann S Wood

Roderick J. Lamothe
Laboratory Director

LABORATORY REPORT

CLIENT: Malter Consulting
ADDRESS: Thatcher Brook Road
Waterbury Center,VT
SITE:
ATTENTION: John Malter
MATRIX: Groundwater

LABORATORY NO: 4-2853
PROJECT NO: 70321

DATE OF SAMPLE: 10/27/94
DATE OF RECEIPT: 10/28/94
DATE OF REPORT: 11/28/94

SCITEST LABORATORY SERVICES

All results in micrograms per liter (ppb)

PARAMETER	2 MW 11	PQL
Dichlorodifluoromethane	BPQL	10
Chloromethane	BPQL	10
Vinyl Chloride	BPQL	10
Bromomethane	BPQL	10
Chloroethane	BPQL	10
Trichlorofluoromethane	BPQL	10
1,1-Dichloroethylene	BPQL	10
Acetone	BPQL	50
Methylene Chloride	BPQL	10
Methyl tertiary Butyl Ether	65*	10
t-1,2-Dichloroethylene	BPQL	10
1,1-Dichloroethane	BPQL	10
c-1-2,-Dichloroethylene	BPQL	10
2, 2-Dichloropropane	BPQL	10
Methyl Ethyl Ketone (2-But)	BPQL	50
Bromochloromethane	BPQL	10
Chloroform	BPQL	10
1,1,1-Trichloroethane	BPQL	10
Carbon Tetrachloride	BPQL	10
1,1-Dichloropropene	BPQL	10
Benzene	454	10
1,2-Dichloroethane	14	10
Trichloroethylene	BPQL	10
1,2-Dichloropropane	BPQL	10
Dibromomethane	BPQL	10
Bromodichloromethane	BPQL	10
cis-1;3-Dichloropropene	BPQL	10
Methyl Isobutyl Ketone (4M2P)	BPQL	50
Toluene	37	10
trans-1,3-Dichloropropene	BPQL	10
1,1,2-Trichloroethane	BPQL	10
Tetrachloroethylene	BPQL	10

PARAMETER	2 MW 11	PQL
1,3-Dichloropropane	BPQL	10
2-Hexanone	BPQL	50
Dibromochloromethane	BPQL	10
1,2-Dibromomethane (EDB)	BPQL	10
Chlorobenzene	BPQL	10
1,1,1,2-Tetrachloroethane	BPQL	10
Ethylbenzene	63	10
m & p-Xylene	124	20
o-Xylene	21	20
Styrene	BPQL	10
Bromoform	BPQL	10
Isopropylbenzene	BPQL	10
Bromobenzene	BPQL	10
1,2,3-Trichloropropane	BPQL	10
1,1,2,2-Tetrachloroethane	BPQL	10
n-Propylbenzene	14	10
2-Chlorotoluene	BPQL	10
4-Chlorotoluene	BPQL	10
1,3,5-Trimethylbenzene	14	10
tert-Butylbenzene	BPQL	10
1,2,4-Trimethylbenzene	60	10
sec-Butylbenzene	BPQL	10
1,3-Dichlorobenzene	BPQL	10
1,4-Dichlorobenzene	BPQL	10
p-Isopropyltoluene	BPQL	10
1,2-Dichlorobenzene	BPQL	10
n-Butylbenzene	BPQL	10
1,2-Dibr-3-clpropane (DBCP)	BPQL	20
1,2,4-Trichlorobenzene	BPQL	10
Hexachlorobutadiene	BPQL	10
Naphthalene	11	10
1,2,3-Trichlorobenzene	BPQL	10

EPA Method 8260, SW-846, 3rd ed., Rev. 1, July, 1992.
BPQL = Below Practical Quantitation Limit (PQL).

Note:* MtBE concentration is approximate.

LABORATORY REPORT

CLIENT: Malter Consulting
ADDRESS: Thatcher Brook Road
Waterbury Center,VT
SITE:
ATTENTION: John Malter
MATRIX: Groundwater

LABORATORY NO: 4-2853
PROJECT NO: 70321
DATE OF SAMPLE: 10/27/94
DATE OF RECEIPT: 10/28/94
DATE OF REPORT: 11/28/94

SCITEST LABORATORY SERVICES

All results in micrograms per liter (ppb)

PARAMETER	5 Trip Blank	6 Field Blank	PQL
Dichlorodifluoromethane	BPQL	BPQL	1.0
Chloromethane	BPQL	BPQL	1.0
Vinyl Chloride	BPQL	BPQL	1.0
Bromomethane	BPQL	BPQL	1.0
Chloroethane	BPQL	BPQL	1.0
Trichlorofluoromethane	BPQL	BPQL	1.0
1,1-Dichloroethylene	BPQL	BPQL	1.0
Acetone	BPQL	BPQL	5.0
Methylene Chloride	BPQL	BPQL	1.0
Methyl tertiary Butyl Ether	BPQL	BPQL	1.0
t-1,2-Dichloroethylene	BPQL	BPQL	1.0
1,1-Dichloroethane	BPQL	BPQL	1.0
c-1-2,-Dichloroethylene	BPQL	BPQL	1.0
2, 2-Dichloropropane	BPQL	BPQL	1.0
Methyl Ethyl Ketone (2-But)	BPQL	BPQL	5.0
Bromochloromethane	BPQL	BPQL	1.0
Chloroform	BPQL	BPQL	1.0
1,1,1-Trichloroethane	BPQL	BPQL	1.0
Carbon Tetrachloride	BPQL	BPQL	1.0
1,1-Dichloropropene	BPQL	BPQL	1.0
Benzene	BPQL	BPQL	1.0
1,2-Dichloroethane	BPQL	BPQL	1.0
Trichloroethylene	BPQL	BPQL	1.0
1,2-Dichloropropane	BPQL	BPQL	1.0
Dibromomethane	BPQL	BPQL	1.0
Bromodichloromethane	BPQL	BPQL	1.0
cis-1,3-Dichloropropene	BPQL	BPQL	1.0
Methyl Isobutyl Ketone (4M2P)	BPQL	BPQL	5.0
Toluene	BPQL	BPQL	1.0
trans-1,3-Dichloropropene	BPQL	BPQL	1.0
1,1,2-Trichloroethane	BPQL	BPQL	1.0
Tetrachloroethylene	BPQL	BPQL	1.0

PARAMETER	5 Trip Blank	6 Field Blank	PQL
1,3-Dichloropropane	BPQL	BPQL	1.0
2-Hexanone	BPQL	BPQL	5.0
Dibromochloromethane	BPQL	BPQL	1.0
1,2-Dibromomethane (EDB)	BPQL	BPQL	1.0
Chlorobenzene	BPQL	BPQL	1.0
1,1,1,2-Tetrachloroethane	BPQL	BPQL	1.0
Ethylbenzene	BPQL	BPQL	1.0
m & p-Xylene	BPQL	BPQL	2.0
o-Xylene	BPQL	BPQL	2.0
Styrene	BPQL	BPQL	1.0
Bromoform	BPQL	BPQL	1.0
Isopropylbenzene	BPQL	BPQL	1.0
Bromobenzene	BPQL	BPQL	1.0
1,2,3-Trichloropropane	BPQL	BPQL	1.0
1,1,2,2-Tetrachloroethane	BPQL	BPQL	1.0
n-Propylbenzene	BPQL	BPQL	1.0
2-Chlorotoluene	BPQL	BPQL	1.0
4-Chlorotoluene	BPQL	BPQL	1.0
1,3,5-Trimethylbenzene	BPQL	BPQL	1.0
tert-Butylbenzene	BPQL	BPQL	1.0
1,2,4-Trimethylbenzene	BPQL	BPQL	1.0
sec-Butylbenzene	BPQL	BPQL	1.0
1,3-Dichlorobenzene	BPQL	BPQL	1.0
1,4-Dichlorobenzene	BPQL	BPQL	1.0
p-Isopropyltoluene	BPQL	BPQL	1.0
1,2-Dichlorobenzene	BPQL	BPQL	1.0
n-Butylbenzene	BPQL	BPQL	1.0
1,2-Dibr-3-clpropane (DBCP)	BPQL	BPQL	2.0
1,2,4-Trichlorobenzene	BPQL	BPQL	1.0
Hexachlorobutadiene	BPQL	BPQL	1.0
Naphthalene	BPQL	BPQL	1.0
1,2,3-Trichlorobenzene	BPQL	BPQL	1.0

EPA Method 8260, SW-846, 3rd ed., Rev. 1, July, 1992.
BPQL = Below Practical Quantitation Limit (PQL).

Respectfully submitted,

SCITEST, INC.

Roderick J. Lamothe
Laboratory Director

CLIENT: Malter Consulting
ADDRESS: Thatcher Brook Road
Waterbury Center,VT 05677

SITE:
ATTENTION: John Malter

LABORATORY NO: 4-2853
PROJECT NO: 70321
DATE OF SAMPLE: 10/27/94
DATE OF RECEIPT: 10/28/94
DATE OF ANALYSIS: 11/09/94
DATE OF REPORT: 11/28/94

Results
(Results expressed in micrograms per liter (ug/L))

PARAMETER	3 MW 4	4 MW 5
Methyl Tertiary Butyl Ether	BPQL	BPQL
Benzene	BPQL	BPQL
Toluene	BPQL	BPQL
Ethylbenzene	BPQL	BPQL
Total Xylenes	BPQL	BPQL
BTEX	BPQL	BPQL
Chlorobenzene	BPQL	BPQL
1,2-Dichlorobenzene	BPQL	BPQL
1,3-Dichlorobenzene	BPQL	BPQL
1,4-Dichlorobenzene	BPQL	BPQL

EPA Method 8020
BPQL = Below Practical Quantitation Limit, 1 ppb

SCITEST
LABORATORY SERVICES

LABORATORY REPORT

CLIENT:	Malter Consulting	LABORATORY NO:	4-2821
ADDRESS:	Thatcher Brook Road	PROJECT NO:	70321
	Waterbury Center,VT 05677	DATE OF SAMPLE:	10/19/94
		DATE OF RECEIPT:	10/26/94
		DATE OF ANALYSIS:	11/4/94
ATTENTION:	John Malter	DATE OF REPORT:	11/28/94

RESULTS

(Results expressed in milligrams per kilogram as dry weight (mg/kg)(ppm))

	1
Total Petroleum Hydrocarbons (TPH) 418.1	**MW 11**
	< 30

EPA method 418.1

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LABORATORY SERVICES

LABORATORY REPORT

CLIENT:	Malter Consulting	LABORATORY NO:	4-2853
ADDRESS:	Thatcher Brook Road	PROJECT NO:	70321
	Waterbury Center,V 05677	DATE OF SAMPLE:	10/27/94
		DATE OF RECEIPT:	10/28/94
		DATE OF ANALYSIS:	11/11/94
ATTENTION:	John Malter	DATE OF REPORT:	11/28/94

RESULTS

(Results expressed in milligrams per liter (mg/L)(ppm)) except as noted

Total Petroleum Hydrocarbons (TPH) Fuel Scan	1 Kerosene Product	2 MW 11
Gasoline	< 10 %	2.4 ppm
Kerosene	70.0 %	< 1 ppm
Diesel Fuel (Fuel Oil #2)	< 10 %	< 1 ppm
Fuel Oil #4	< 10 %	< 1 ppm

Note: Kerosene product had a larger boiling point range than the Kerosene standard.

EPA method 8100 modified, SW-846, 3rd Edition, July, 1992.

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4|4(4)

Scitest

Field Identification: 4-2501-2 MW2

Matrix: OIL

Parameter	Result	Reporting Limit	Lab No.	Date Analyzed	QC Batch	Method/Ref.
Specific Gravity	0.8134 ~~*Test is open*~~		41752-001	10/13/94	213E/3	D3245-85
Viscosity (cpoise)	3.3 ~~*Test is open*~~		41752-001	↓	D3245-85	
Flash Point (degrees F)	~~BQL~~ ~~*Test is open*~~ <50	50	41752-001		D93-80/4	

Field Identification: 4-2501-8 MW-9

Matrix: OIL

Parameter	Result	Reporting Limit	Lab No.	Date Analyzed	QC Batch	Method/Ref.
Specific Gravity	0.9181 ~~*Test is open*~~		41752-002	10/13/94	213E/3	D3245-85
Viscosity (cpoise)	3.3 ~~*Test is open*~~		41752-002	↓	D3245-85	

2

References: 3) Standard Methods, 16th Edition
4) ASTM

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To Scitest Inc.	From Gr...
Co. Rob Hamilton	Co. PAT... New England
Dept. 6044	Phone # (...) 736-...
Fax # (...) 1.. -4756	Fax #

OCT 17 '94 08:13 SCITEST

APPENDIX D


NO
SMOKING
STOP ENGINE